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United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service



# Washington Basin Outlook Report

## April 1, 1996





# Basin Outlook Reports

## and Federal - State - Private Cooperative Snow Surveys

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### *How forecasts are made*

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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# Washington Water Supply Outlook

April 1996

## General Outlook

April 1 signifies the of irrigation season for most of Washington. April also indicates the end of measurable snow accumulation in the mountains. On average most SNOTEL sites in Washington reach peak snowpack between April 1 - 15. This year we are seeing these peaks a little sooner. Unseasonably warm temperatures and lack of precipitation during March have caused sites to peak up to 30 days early.

## Streamflow

Forecasts for spring - summer streamflow are for near normal for most of Washington. The lack of normal March snowpack accumulations has brought forecasts down slightly from last month. They vary from 130% of average for the Kettle River near Laurier to 68% of normal for the Elwha River near Port Angeles. April forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 81%; Green River, 90%; and the Skagit River, 95%. Some Eastern Washington streams include Mill Creek at Walla Walla, 94%; the Wenatchee River at Peshastin, 103%; the Columbia River at The Dalles, 105%; and the Colville River, 99%. March streamflows varied greatly throughout the state but were all near to above normal. The Similkameen River at Nighthawk was the highest at 216% of normal; and the Lewis River at Ariel, with 92% of normal, was the lowest in the state. Other streamflows were the following percentage of normal: Cowlitz River, 99%; Okanogan River, 213%; Spokane River, 114%; Columbia River at the Canadian border, 130%; and Yakima River at Parker, 149%. Many of the above normal flows can be attributed to reservoir releases as managers prepare for spring runoff.

### BASIN

PERCENT OF AVERAGE  
MOST PROBABLE FORECAST  
(50 PERCENT CHANCE OF EXCEEDANCE)

|                            |         |
|----------------------------|---------|
| Spokane.....               | 84-86   |
| Colville-Pend Oreille..... | 99-113  |
| Okanogan-Methow.....       | 110-129 |
| Wenatchee-Chelan.....      | 103-131 |
| Yakima.....                | 98-123  |
| Walla Walla.....           | 94-105  |
| Cowlitz-Lewis.....         | 92-123  |
| White-Green-Cedar.....     | 81-90   |
| North Puget Sound.....     | 77-100  |
| Olympic Peninsula.....     | 68-72   |

## Snowpack

The April 1 statewide SNOTEL reading showed the snowpack at 81% of normal, down only slightly from last month. Snowpack varied across the state, with the Olympic Peninsula River Basin reporting the lowest with 34% of average, and the Entiat River Basin retaining the highest at 145% of normal. Westside averages from SNOTEL and April 1 snow surveys include North Puget Sound River Basins with 64% of normal; White-Green-Cedar River Basins with 64%; and Lewis-Cowlitz Basins with 73% of normal. Snowpack along the east slopes of the Cascade Mountains include the Yakima with 84%, and the Wenatchee with 97%. Snowpack in the Spokane River Basin was at 69%; Pend Oreille River Basin, including Canadian data, had 100% of normal. Maximum snow cover was at Lyman Lake SNOTEL in the north-central Cascade Mountains, with a water content of 67.1 inches. This site would normally have 56.9 inches of water content on April 1. High average in the state goes to Pope Ridge SNOTEL in the Entiat River Basin with 152% of normal. Snowpack did not change significantly from last month. Mid-elevation sites have begun normal meltout. However, high mountain snowpack remains the same. March accumulations were minimal.

| BASIN                  | PERCENT OF LAST YEAR | PERCENT OF AVERAGE |
|------------------------|----------------------|--------------------|
| Spokane.....           | 94.....              | 70                 |
| Colville.....          | 52.....              | 63                 |
| Pend Oreille.....      | 126.....             | 100                |
| Okanogan.....          | 100.....             | 104                |
| Methow.....            | 82.....              | 115                |
| Wenatchee.....         | 81.....              | 93                 |
| Chelan.....            | 99.....              | 117                |
| Yakima.....            | 78.....              | 84                 |
| Walla Walla.....       | 81.....              | 80                 |
| Cowlitz.....           | 82.....              | 81                 |
| Lewis.....             | 59.....              | 56                 |
| White.....             | 80.....              | 96                 |
| Green.....             | 74.....              | 51                 |
| North Puget Sound..... | 63.....              | 64                 |
| Olympic Peninsula..... | 39.....              | 34                 |



## Precipitation

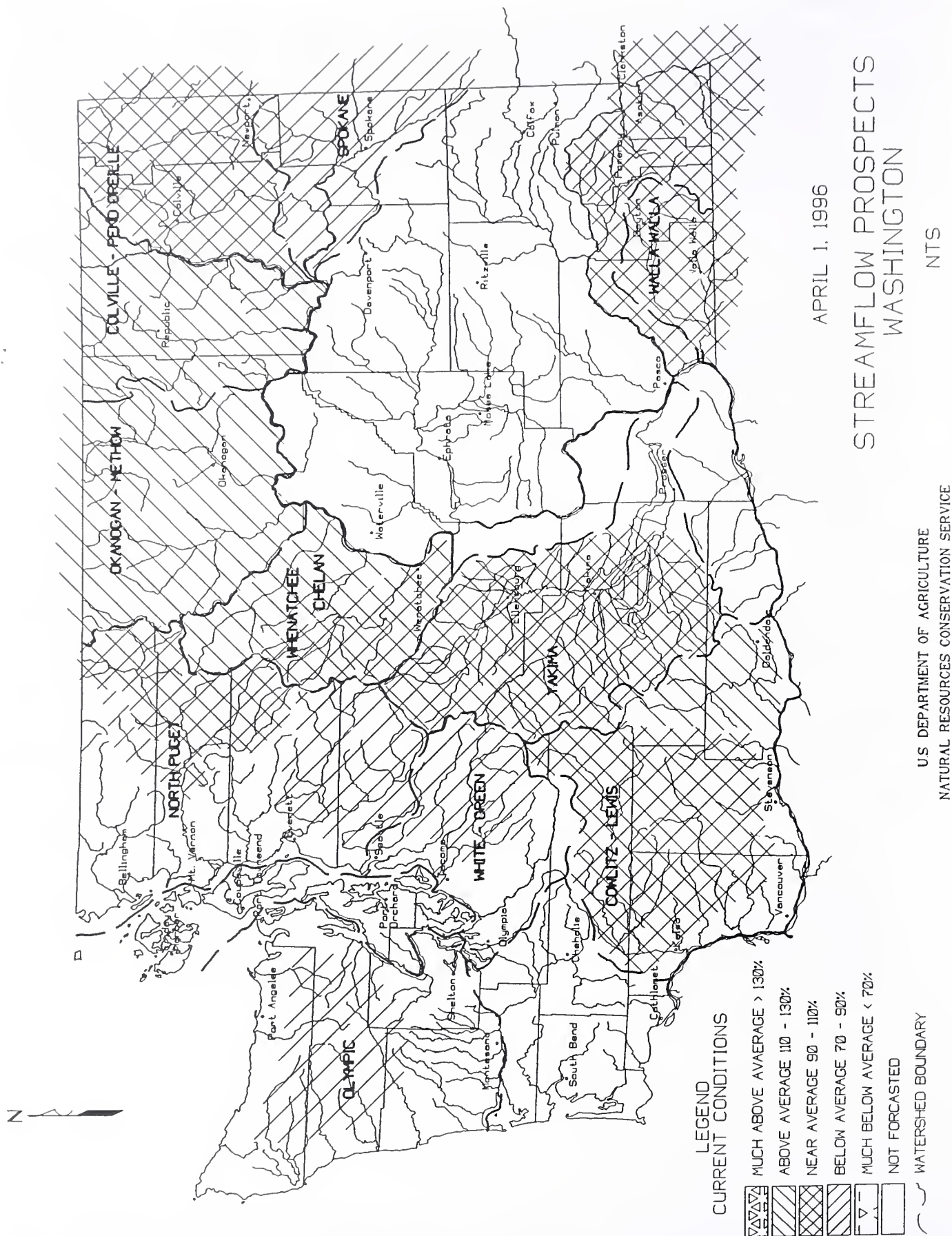
During the month of March the National Weather Service and Natural Resources Conservation Service climate stations showed spotty and sporadic precipitation accumulation across the state. Precipitation varied from a high of 150% of average at Walla Walla to a low of 27% of normal at Bunchgrass Meadows SNOTEL site in Pend Oreille County. Basin-wide averages for the water year varied from 109% of normal in the Olympic Peninsula River Basins, to 156% of normal in the Yakima River basin.

| BASIN                      | MARCH<br>PERCENT OF AVERAGE | WATER YEAR<br>PERCENT OF AVERAGE |
|----------------------------|-----------------------------|----------------------------------|
| Spokane.....               | 50.....                     | 135                              |
| Colville-Pend Oreille..... | 53.....                     | 123                              |
| Okanogan-Methow.....       | 43.....                     | 112                              |
| Wenatchee-Chelan.....      | 67.....                     | 141                              |
| Yakima.....                | 57.....                     | 156                              |
| Walla Walla.....           | 66.....                     | 128                              |
| Cowlitz-Lewis.....         | 56.....                     | 145                              |
| White-Green-Cedar.....     | 55.....                     | 144                              |
| North Puget Sound.....     | 52.....                     | 145                              |
| Olympic Peninsula.....     | 40.....                     | 109                              |

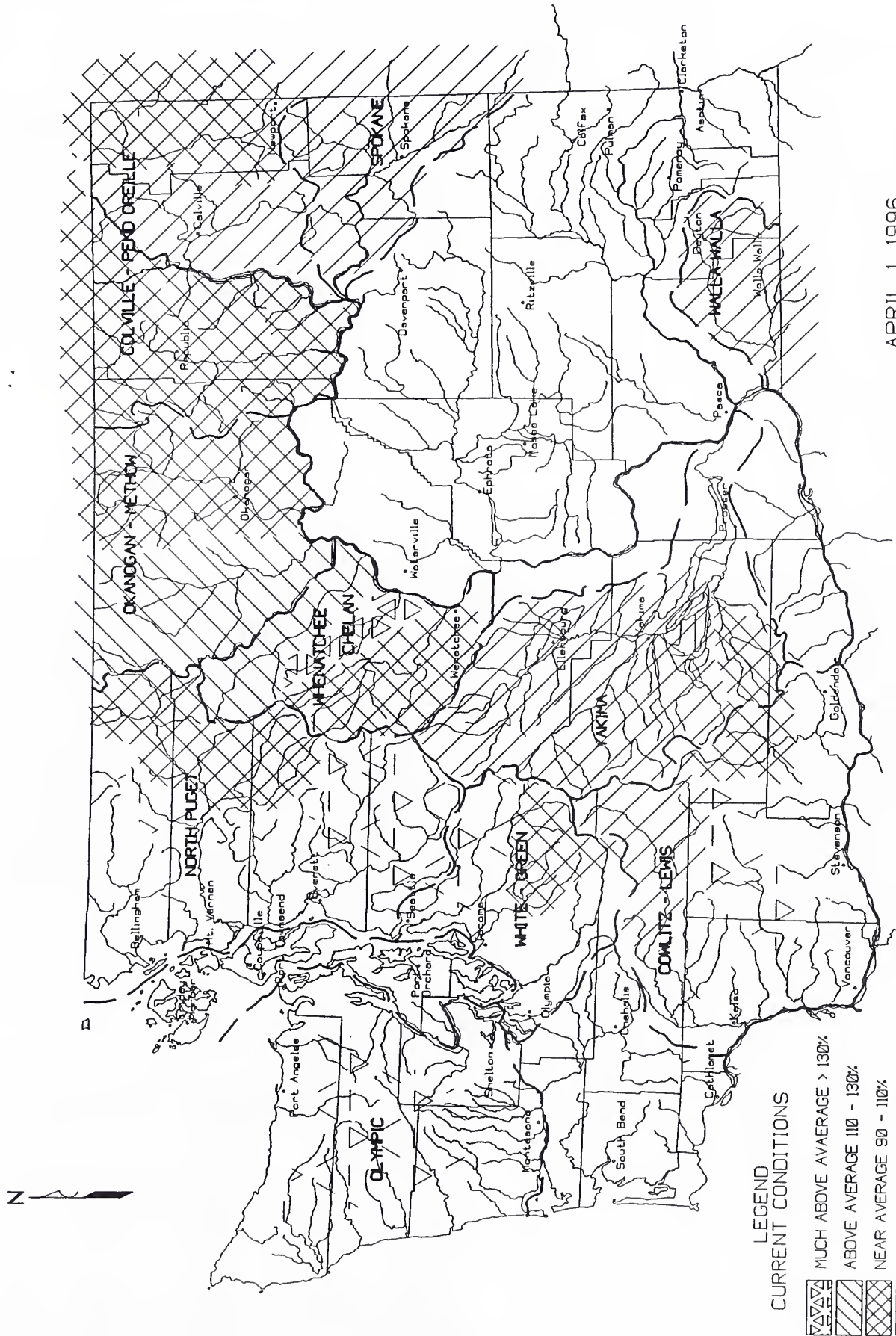
## Reservoir

Reservoir storage in Washington remained near to above average for April 1. Reservoir storage in the Yakima Basin was 911,400 acre feet, 123% of normal. Storage at other reservoirs included Roosevelt at 124% of average, and the Okanogan reservoirs with 125% of normal for April 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 141,700 acre feet, or 83% of normal; Chelan Lake, 462,000 acre feet, 218% of average and 68% of capacity; and Ross Lake at 328% of average and 70% of capacity. Many reservoir operators in the state have been releasing water in anticipation of spring runoff and flood control.

| BASIN                      | PERCENT OF CAPACITY | PERCENT OF AVERAGE |
|----------------------------|---------------------|--------------------|
| Spokane.....               | 59.....             | 83                 |
| Colville-Pend Oreille..... | 44.....             | 121                |
| Okanogan-Methow.....       | 80.....             | 125                |
| Wenatchee-Chelan.....      | 68.....             | 218                |
| Yakima.....                | 86.....             | 123                |
| North Puget Sound.....     | 70.....             | 328                |







LEGEND  
CURRENT CONDITIONS

MUCH ABOVE AVERAGE > 130%

ABOVE AVERAGE 110 - 130%

NEAR AVERAGE 90 - 110%

BELOW AVERAGE 70 - 90%

☐ MUCH BELOW AVERAGE < 70%

NOT FORCAST

 WATERSHED BOUNDARY

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

APRIL 1, 1996

MOUNTAIN SNOWPACK  
WASHINGTON

SNZ

# BASIN SUMMARY OF SNOW COURSE DATA

APRIL 1996

| SNOW COURSE           | ELEVATION | DATE    | SNOW<br>DEPTH | WATER<br>CONTENT | LAST<br>YEAR | AVERAGE<br>1961-90 | SNOW COURSE            | ELEVATION | DATE    | SNOW<br>DEPTH | WATER<br>CONTENT | LAST<br>YEAR | AVERAGE<br>1961-90 |
|-----------------------|-----------|---------|---------------|------------------|--------------|--------------------|------------------------|-----------|---------|---------------|------------------|--------------|--------------------|
| PEND OREILLE RIVER    |           |         |               |                  |              |                    | WENATCHEE RIVER        |           |         |               |                  |              |                    |
| BENTON MEADOW         | 2370      | 4/01/96 | 0             | .0               | .0           | 3.8                | BERNE-MILL CREEK (d)   | 3170      | 3/29/96 | 58            | 24.0             | 30.1         | 27.2               |
| BENTON SPRING         | 4920      | 4/01/96 | 33            | 11.6             | 15.4         | 18.6               | BLEWETT PASS #2        | 4270      | 3/25/96 | 29            | 11.9             | 13.6         | 15.1               |
| BOYER MOUNTAIN        | 5250      | 3/28/96 | 41            | 14.8             | 26.2         | 25.7               | BLEWETT PASS#2PILLOW   | 4270      | 4/01/96 | ---           | 13.2S            | 18.6         | 17.8               |
| BUNCHGRASS MEADOWS    | 5000      | 3/27/96 | 62            | 22.1             | 26.7         | 29.5               | CHIWAUKUM G.S.         | 2500      | 3/29/96 | 28            | 11.0             | 13.4         | 8.9                |
| BUNCHGRASS MDWPILLOW  | 5000      | 4/01/96 | ---           | 22.0E            | 32.0         | 26.6               | FISH LAKE PILLOW       | 3370      | 4/01/96 | ---           | 34.5S            | 35.0         | 31.9               |
| CHEWALAH              | 4930      | 3/29/96 | 30            | 10.3             | 20.0         | 16.1               | LYMAN LAKE             | 5900      | 4/01/96 | ---           | 69.2E            | 69.3         | 58.7               |
| HEART LAKE TRAIL      | 4800      | 3/26/96 | 49            | 16.6             | 13.3         | 21.6               | LYMAN LAKE PILLOW      | 5900      | 4/01/96 | ---           | 67.1S            | 75.1         | 56.9               |
| HOODOO BASIN          | 6050      | 3/26/96 | 133           | 50.7             | 39.9         | 51.0               | MERRITT                | 2140      | 3/29/96 | 29            | 11.5             | 15.3         | 12.8               |
| HOODOO CREEK          | 5900      | 3/26/96 | 114           | 44.0             | 32.2         | 46.3               | MISSION RIDGE          | 5000      | 3/30/96 | 43            | 15.6             | 20.1         | 16.5               |
| LOOKOUT PILLOW        | 5140      | 4/01/96 | ---           | 26.0             | 25.2         | 33.4               | STEVENS PASS PILLOW    | 4070      | 4/01/96 | ---           | 31.1S            | 46.4         | 42.3               |
| NELSON CAN.           | 3100      | 3/27/96 | 35            | 13.1             | 16.2         | 15.5               | STEVENS PASS SAND SD   | 3700      | 3/29/96 | 55            | 22.8             | 32.6         | 33.7               |
| KETTLE RIVER          |           |         |               |                  |              |                    | TROUGH #2 PILLOW       | 5310      | 4/01/96 | ---           | 13.0S            | 15.1         | 9.7                |
| BARNES CREEK CAN.     | 5300      | 3/29/96 | 62            | 24.7             | 19.2         | 20.6               | UPPER WHEELER          | 4400      | 3/28/96 | 9             | 2.7              | 4.8          | 7.8                |
| BIG WHITE MTN CAN.    | 5510      | 3/31/96 | 58            | 20.9             | 23.3         | 19.4               | UPPER WHEELER PILLOW   | 4400      | 4/01/96 | ---           | 12.2S            | 17.2         | 13.6               |
| BUTTE CREEK           | 4070      | 3/28/96 | 23            | 7.7              | 8.7          | 9.0                | SQUILCHUCK CREEK       |           |         |               |                  |              |                    |
| CARMH CAN.            | 4100      | 3/30/96 | 19            | 5.7              | 5.7          | 6.4                | STEMILT CREEK          |           |         |               |                  |              |                    |
| FARRON CAN.           | 4000      | 4/01/96 | 42            | 13.5             | 13.3         | 13.9               | STEMILT SLIDE          | 5000      | 3/28/96 | 28            | 10.7             | 13.8         | 12.8               |
| GOAT CREEK            | 3600      | 3/28/96 | 7             | 2.1              | 4.2          | 4.3                | UPPER WHEELER          | 4400      | 3/28/96 | 9             | 2.7              | 4.8          | 7.8                |
| GRAYSTOKE LAKE CAN.   | 5940      | 4/01/96 | 42            | 13.0             | 13.9         | 17.6               | UPPER WHEELER PILLOW   | 4400      | 4/01/96 | ---           | 12.2S            | 17.2         | 13.6               |
| MONASHEE PASS CAN.    | 4500      | 3/29/96 | 43            | 16.1             | 13.3         | 14.0               | COLOCKUM CREEK         |           |         |               |                  |              |                    |
| SUMMIT G.S.           | 4600      | 3/28/96 | 22            | 6.8              | 8.9          | 8.1                | TROUGH #2 PILLOW       | 5310      | 4/01/96 | ---           | 13.0S            | 15.1         | 9.7                |
| TRAPPING CK LOW CAN.  | 3050      | 3/30/96 | 13            | 4.5              | 1.7          | 3.5                | YAKIMA RIVER           |           |         |               |                  |              |                    |
| TRAPPING CK UP CAN.   | 4460      | 3/30/96 | 21            | 5.9              | 6.0          | 9.8                | BIG BOULDER CREEK      | 3200      | 4/01/96 | ---           | 15.4E            | 19.2         | 17.8               |
| COLVILLE RIVER        |           |         |               |                  |              |                    | BLEWETT PASS #2        | 4270      | 3/25/96 | 29            | 11.9             | 13.6         | 15.1               |
| BAIRD #2              | 3220      | 3/27/96 | 13            | 4.6              | 8.5          | --                 | BLEWETT PASS#2PILLOW   | 4270      | 4/01/96 | ---           | 13.2S            | 18.6         | 17.8               |
| STRANGER MOUNTAIN     | 4230      | 3/29/96 | 24            | 7.5              | 14.1         | 12.2               | BUMPING LAKE           | 3450      | 4/01/96 | ---           | 12.4E            | 16.0         | 14.2               |
| TOGO                  | 3370      | 4/01/96 | ---           | 6.8E             | 12.9         | 10.8               | BUMPING LAKE (NEW)     | 3400      | 3/27/96 | 31            | 13.2             | 21.0         | 18.3               |
| OMAK LAKE, TWIN LAKES |           |         |               |                  |              |                    | BUMPING RIDGE PILLOW   | 4600      | 4/01/96 | ---           | 18.0S            | 25.4         | 21.2               |
| MOSES MTN PILLOW      | 4800      | 4/01/96 | ---           | 15.0S            | 26.6         | 15.5               | CAYUSE PASS            | 5300      | 4/01/96 | ---           | 78.6E            | 89.0         | 82.4               |
| SPOKANE RIVER         |           |         |               |                  |              |                    | COLOCKUM PASS          | 5370      | 3/25/96 | 38            | 14.9             | 21.0         | 16.5               |
| FOURTH OF JULY SUM    | 3200      | 4/01/96 | 4             | 2.2              | .0           | 6.8                | CORRAL PASS PILLOW     | 6000      | 4/01/96 | ---           | 31.1S            | 34.6         | 32.6               |
| LOST LAKE (d)         | 6110      | 4/01/96 | ---           | 52.6E            | 45.7         | 57.0               | FISH LAKE              | 3370      | 3/27/96 | 60            | 26.9             | 33.7         | 31.4               |
| MOSQUITO RDG PILLOW   | 5200      | 4/01/96 | ---           | 31.1             | 32.5         | 37.3               | FISH LAKE PILLOW       | 3370      | 4/01/96 | ---           | 34.5S            | 35.0         | 31.9               |
| SUNSET PILLOW         | 5540      | 4/01/96 | ---           | 24.5             | 20.8         | 37.6               | GREEN LAKE             | 6000      | 4/01/96 | ---           | 35.4E            | 43.6         | 33.9               |
| LOOKOUT PILLOW        | 5140      | 4/01/96 | ---           | 26.0             | 25.2         | 33.4               | GREEN LAKE PILLOW      | 6000      | 4/01/96 | ---           | 21.6S            | 26.6         | 20.7               |
| NEWMAN LAKE           |           |         |               |                  |              |                    | GROUSE CAMP PILLOW     | 5380      | 4/01/96 | ---           | 18.0S            | 24.3         | 19.8               |
| QUARTZ PEAK PILLOW    | 4700      | 4/01/96 | ---           | 12.0             | 23.9         | 21.9               | DOMMERIE FLATS         | 2200      | 3/29/96 | 0             | .0               | .5           | 4.3                |
| RAGGED RIDGE          | 3330      | 3/27/96 | 0             | .0               | --           | 3.5                | LOST HORSE PILLOW      | 5000      | 4/01/96 | ---           | 16.4S            | 20.4         | 26.4               |
| OKANOGAN RIVER        |           |         |               |                  |              |                    | MORSE LAKE PILLOW      | 5400      | 4/01/96 | ---           | 46.0S            | 71.5         | 47.2               |
| ABERDEEN LAKE CAN.    | 4300      | 4/01/96 | 25            | 7.2              | 4.6          | 6.1                | OLALLIE MDWS PILLOW    | 3960      | 4/01/96 | ---           | 33.5S            | 43.0         | 53.5               |
| BLACKWALL PEAK CAN.   | 6370      | 4/01/96 | ---           | 34.0             | 33.7         | 33.8               | OLALLIE MEADOWS        | 3630      | 4/02/96 | 37            | 20.4             | 24.2         | 44.8               |
| BRENDA MINE CAN.      | 4800      | 3/27/96 | 39            | 13.1             | 12.9         | 13.0               | SASSE RIDGE PILLOW     | 4200      | 4/01/96 | ---           | 30.6S            | 40.0         | 32.1               |
| BROOKMERE CAN.        | 3200      | 3/30/96 | 33            | 10.3             | 7.3          | 8.6                | STAMPEDE PASS PILLOW   | 3860      | 4/01/96 | ---           | 34.8S            | 49.9         | 44.4               |
| ENDERBY CAN.          | 6200      | 3/30/96 | 103           | 44.9             | 35.8         | 38.6               | TUNNEL AVENUE          | 2450      | 3/28/96 | 30            | 13.5             | 21.3         | 20.8               |
| ESPERON CK. UP CAN.   | 5410      | 3/30/96 | 49            | 15.4             | 18.8         | 18.7               | WHITE PASS ES PILLOW   | 4500      | 4/01/96 | ---           | 17.5S            | 25.5         | 22.9               |
| ESPERON CK. MID CAN.  | 4690      | 3/30/96 | 45            | 14.5             | 16.3         | 15.5               | AHTANUM CREEK          |           |         |               |                  |              |                    |
| FREEZEOUT CK. TRAIL   | 3500      | 3/28/96 | 15            | 4.8              | 9.3          | 11.5               | GREEN LAKE             | 6000      | 4/01/96 | ---           | 35.4E            | 43.6         | 33.9               |
| GREYBACK RES CAN.     | 5120      | 3/29/96 | 35            | 10.6             | 10.1         | 9.1                | GREEN LAKE PILLOW      | 6000      | 4/01/96 | ---           | 21.6S            | 26.6         | 20.7               |
| HAMILTON HILL CAN.    | 4890      | 4/01/96 | 43            | 14.3             | 11.4         | 15.1               | LOST HORSE PILLOW      | 5000      | 4/01/96 | ---           | 16.4S            | 20.4         | 26.4               |
| HARTS PASS            | 6500      | 3/29/96 | 117           | 44.0             | 46.9         | 42.6               | MILL CREEK             |           |         |               |                  |              |                    |
| HARTS PASS PILLOW     | 6500      | 4/01/96 | ---           | 53.0S            | 53.2         | 41.3               | HIGH RIDGE PILLOW      | 4980      | 4/01/96 | ---           | 17.7S            | 23.6         | 24.4               |
| ISINTOK LAKE CAN.     | 5500      | 3/27/96 | 28            | 8.1              | 7.7          | 7.6                | TOUCHET #2 PILLOW      | 5530      | 4/01/96 | ---           | 27.6             | 32.3         | 31.9               |
| LIGHTNING LAKE CAN.   | 4000      | 4/01/96 | 41            | 13.1             | 11.2         | 12.7               | LEWIS - COWLITZ RIVERS |           |         |               |                  |              |                    |
| LOST HORSE MTN CAN.   | 6300      | 4/01/96 | 42            | 13.0             | 9.9          | 9.5                | CAYUSE PASS            | 5300      | 4/01/96 | ---           | 78.6E            | 89.0         | 82.4               |
| MCCULLOCH CAN.        | 4200      | 3/28/96 | 18            | 5.7              | 2.8          | 6.7                | JUNE LAKE PILLOW       | 3200      | 4/01/96 | ---           | 10.9S            | 31.0         | 36.3               |
| MISSEZULA MTN CAN.    | 5090      | 3/31/96 | 33            | 9.9              | 10.0         | 9.4                | LONE PINE PILLOW       | 3800      | 4/01/96 | ---           | 19.6S            | 31.5         | 32.1               |
| MISSION CREEK CAN.    | 5800      | 4/01/96 | ---           | 21.4E            | 18.1         | 20.4               | PARADISE PARK PILLOW   | 5500      | 4/01/96 | ---           | 56.4S            | 72.5         | 62.1               |
| MONASHEE PASS CAN.    | 4500      | 3/29/96 | 43            | 16.1             | 13.3         | 14.0               | PIGTAIL PEAK PILLOW    | 5900      | 4/01/96 | ---           | 52.9S            | 47.5         | 49.3               |
| MT. KOBAU CAN.        | 5900      | 3/30/96 | 38            | 12.2             | 17.7         | 12.9               | POTATO HILL PILLOW     | 4500      | 4/01/96 | ---           | 18.1S            | 23.2         | 25.3               |
| MUTTON CREEK #1       | 5700      | 3/27/96 | 35            | 12.3             | 21.5         | 13.2               | SHEEP CANYON PILLOW    | 4050      | 4/01/96 | ---           | 8.4S             | 22.3         | 39.8               |
| OYAMA LAKE CAN.       | 4400      | 3/28/96 | 27            | 8.6              | 6.9          | 7.0                | SPENCER MDW PILLOW     | 3400      | 4/01/96 | ---           | 18.3S            | 28.1         | 29.6               |
| POSTILL LAKE CAN.     | 4500      | 3/29/96 | 31            | 10.3             | 9.3          | 9.0                | SPIRIT LAKE PILLOW     | 3100      | 4/01/96 | ---           | .0S              | 3.8          | 3.6                |
| RUSTY CREEK           | 4000      | 3/27/96 | 16            | 5.3              | 6.9          | 5.9                | SURPRISE LKS PILLOW    | 4250      | 4/01/96 | ---           | 31.0S            | 45.3         | 44.2               |
| SALMON MDWS PILLOW    | 4500      | 4/01/96 | ---           | 9.9S             | 16.1         | 9.4                | WHITE PASS ES PILLOW   | 4500      | 4/01/96 | ---           | 17.5S            | 25.5         | 22.9               |
| SILVER STAR MTN CAN.  | 6000      | 3/29/96 | 78            | 30.4             | 30.7         | 29.2               | WHITE RIVER            |           |         |               |                  |              |                    |
| SUMMERLAND RES CAN.   | 4200      | 3/26/96 | 30            | 10.1             | 9.6          | 9.5                | CAYUSE PASS            | 5300      | 4/01/96 | ---           | 78.6E            | 89.0         | 82.4               |
| SUNDAY SUMMIT CAN.    | 4300      | 4/01/96 | 13            | 4.1              | 1.5          | 4.7                | CORRAL PASS            | 6000      | 3/30/96 | 85            | 34.8             | 35.7         | 40.1               |
| TROUT CREEK CAN.      | 4690      | 3/29/96 | 29            | 9.1              | 7.0          | 7.2                | CORRAL PASS PILLOW     | 6000      | 4/01/96 | ---           | 31.1S            | 34.6         | 32.6               |
| VASEUX CREEK CAN.     | 4600      | 3/28/96 | 18            | 5.8              | 6.1          | 6.6                | MORSE LAKE PILLOW      | 5400      | 4/01/96 | ---           | 46.0S            | 71.5         | 47.2               |
| WHITE ROCKS MTN CAN.  | 6000      | 3/29/96 | 56            | 19.7             | 25.6         | 23.9               | GREEN RIVER            |           |         |               |                  |              |                    |
| METHOW RIVER          |           |         |               |                  |              |                    | COUGAR MTN. PILLOW     | 3200      | 4/01/96 | ---           | 6.6S             | 5.0          | 18.8               |
| HARTS PASS            | 6500      | 3/29/96 | 117           | 44.0             | 46.9         | 42.6               | GRASS MOUNTAIN #2      | 2900      | 3/30/96 | 0             | .0               | .0           | 15.9               |
| HARTS PASS PILLOW     | 6500      | 4/01/96 | ---           | 53.0S            | 53.2         | 41.3               | LESTER CREEK           | 3100      | 3/30/96 | 32            | 11.2             | 17.5         | 23.3               |
| MUTTON CREEK #1       | 5700      | 3/27/96 | 35            | 12.3             | 21.5         | 13.2               | LYNN LAKE              | 4000      | 3/30/96 | 13            | 5.0              | 7.4          | 22.0               |
| RUSTY CREEK           | 4000      | 3/27/96 | 16            | 5.3              | 6.9          | 5.9                | SAWMILL RIDGE          | 4700      | 3/30/96 | 47            | 19.7             | 31.7         | 36.3               |
| SALMON MDWS PILLOW    | 4500      | 4/01/96 | ---           | 9.9S             | 16.1         | 9.4                | STAMPEDE PASS PILLOW   | 3860      | 4/01/96 | ---           | 34.8S            | 49.9         | 44.4               |
| CHELAN LAKE BASIN     |           |         |               |                  |              |                    | TWIN CAMP              | 4100      | 3/30/96 | 45            | 17.3             | 16.9         | 25.1               |
| LYMAN LAKE            | 5900      | 4/01/96 | ---           | 69.2E            | 69.3         | 58.7               | CEDAR RIVER            |           |         |               |                  |              |                    |
| LYMAN LAKE PILLOW     | 5900      | 4/01/96 | ---           | 67.1S            | 75.1         | 56.9               | CITY CABIN             | 2390      | 4/01/96 | ---           | 6.6E             | 3.4          | 13.6               |
| MINERS RIDGE PILLOW   | 6200      | 4/01/96 | ---           | 52.6S            | 55.6         | 52.2               | MT. GARDNER            | 3300      | 3/27/96 | 8             | 3.1              | 3.3          | 14.1               |
| PARK CREEK RIDGE      | 4600      | 4/01/96 | ---           | 52.4E            | 52.9         | 43.1               | MT. GARDNER PILLOW     | 2860      | 4/01/96 | ---           | 4.7S             | 3.3          | 14.0               |
| PARK CK RIDGE PILLOW  | 4600      | 4/01/96 | ---           | 50.6S            | 40.0         | 41.6               | TINKHAM CREEK PILLOW   | 3000      | 4/01/96 | ---           | 19.1S            | 22.6         | 19.9               |
| RAINY PASS            | 4780      | 3/28/96 | 89            | 33.3             | 42.4         | 39.3               | MEADOWS PASS PILLOW    | 3240      | 4/01/96 | ---           | 8.9S             | 67.0         | 24.9               |
| RAINY PASS PILLOW     | 4780      | 4/01/96 | ---           | 51.4S            | 52.6         | 38.0               | SNOQUALMIE RIVER       |           |         |               |                  |              |                    |
| ENTIAI RIVER          |           |         |               |                  |              |                    | ALPINE MEADOWS         | 3500      | 3/26/96 | 42            | 16.3             | 47.3         | 43.7               |
| BRIEF                 | 1600      | 3/29/96 | 11            | 2.4              | 4.7          | 2.5                | OLALLIE MDWS PILLOW    | 3960      | 4/01/96 | ---           | 33.5S            | 43.0         | 53.5               |
| POPE RIDGE PILLOW     | 3540      | 4/01/96 | ---           | 23.9S            | 25.0         | 15.7               | OLALLIE MEADOWS        | 3630      | 4/02/96 | 37            | 20.4             | 24.2         | 44.8               |



| SNOW COURSE          | ELEVATION | DATE    | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-90 | SNOW COURSE                    | ELEVATION | DATE      | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-90 |      |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|--------------------------------|-----------|-----------|------------|---------------|-----------|-----------------|------|
| SKYKOMISH RIVER      |           |         |            |               |           |                 | BAKER RIVER                    |           |           |            |               |           |                 |      |
| STAMPEDE PASS PILLOW | 3860      | 4/01/96 | ---        | 34.8S         | 49.9      | 44.4            | DOCK BUTTE                     | AM        | 3800      | 3/28/96    | 44            | 18.0      | 59.0            | 65.4 |
| STEVENS PASS PILLOW  | 4070      | 4/01/96 | ---        | 31.1S         | 46.4      | 42.3            | EASY PASS                      | AM        | 5200      | 3/28/96    | 100           | 44.0      | 97.0            | 82.9 |
| STEVENS PASS SAND SD | 3700      | 3/29/96 | 55         | 22.8          | 32.6      | 33.7            | JASPER PASS                    | AM        | 5400      | 3/28/96    | 120           | 49.0      | 94.0            | 86.0 |
| SKAGIT RIVER         |           |         |            |               |           |                 | MARTEN LAKE                    | AM        | 3600      | 3/28/96    | 60            | 26.0      | 70.0            | 73.4 |
| BEAVER CREEK TRAIL   | 2200      | 3/27/96 | 10         | 3.8           | 10.4      | 11.6            | MT. BLUM                       | AM        | 5800      | 3/28/96    | 96            | 38.0      | 71.0            | 63.1 |
| BEAVER PASS          | 3680      | 3/27/96 | 42         | 15.7          | 32.4      | 29.7            | ROCKY CREEK                    | AM        | 2100      | 3/28/96    | 4             | 2.4       | 31.0            | 27.8 |
| BROWN TOP            | AM        | 6000    | 3/27/96    | 126           | 52.2      | 66.2            | SCHREIBERS MDW                 | AM        | 3400      | 3/28/96    | 36            | 15.0      | 49.0            | 58.8 |
| DEVILS PARK          | 5900      | 3/28/96 | 108        | 42.8          | 48.4      | 42.9            | SF THUNDER CK                  | AM        | 2200      | 3/28/96    | 0             | .0        | .0              | 4.9  |
| FREEZEOUT CK. TRAIL  | 3500      | 3/28/96 | 15         | 4.8           | 9.3       | 11.5            | WATSON LAKES                   | AM        | 4500      | 3/28/96    | 60            | 25.0      | 56.0            | 64.9 |
| HARTS PASS           | 6500      | 3/29/96 | 117        | 44.0          | 46.9      | 42.6            | ELWHA RIVER                    |           |           |            |               |           |                 |      |
| HARTS PASS PILLOW    | 6500      | 4/01/96 | ---        | 53.0S         | 53.2      | 41.3            | HURRICANE                      |           | 4500      | 3/31/96    | 9             | 2.3       | 13.0            | 22.1 |
| LIGHTNING LAKE CAN.  | 4000      | 4/01/96 | 41         | 13.1          | 11.2      | 12.7            | MORSE CREEK                    |           |           |            |               |           |                 |      |
| LYMAN LAKE           | 5900      | 4/01/96 | ---        | 69.2E         | 69.3      | 58.7            | COX VALLEY                     |           | 4500      | 3/30/96    | 44            | 15.9      | 37.9            | 39.5 |
| LYMAN LAKE PILLOW    | 5900      | 4/01/96 | ---        | 67.1S         | 75.1      | 56.9            | DUNGENESS RIVER                |           |           |            |               |           |                 |      |
| MEADOWS CABIN        | 1900      | 3/27/96 | 0          | .0            | .0        | 4.8             | DEER PARK                      |           | 5200      | 4/01/96    | 20            | 6.8       | 14.4            | 20.9 |
| NEW HOZOMEEN LAKE    | 2800      | 3/27/96 | 14         | 4.3           | 6.2       | 10.4            | QUILCENE RIVER                 |           |           |            |               |           |                 |      |
| RAINY PASS           | 4780      | 3/28/96 | 89         | 33.3          | 42.4      | 39.3            | MOUNT CRAG                     | PILLOW    | 4050      | 4/01/96    | ---           | 16.7S     | 35.0            | 31.5 |
| RAINY PASS PILLOW    | 4780      | 4/01/96 | ---        | 51.4S         | 52.6      | 38.0            | WYNOOCHEE RIVER                |           | NO REPORT |            |               |           |                 |      |
| THUNDER BASIN        | 4200      | 3/27/96 | 47         | 13.6          | 22.4      | 34.7            | (d) Denotes discontinued site. |           |           |            |               |           |                 |      |
| THUNDER BASIN PILLOW | 4200      | 4/01/96 | ---        | 29.5S         | 32.9      | 34.7            |                                |           |           |            |               |           |                 |      |

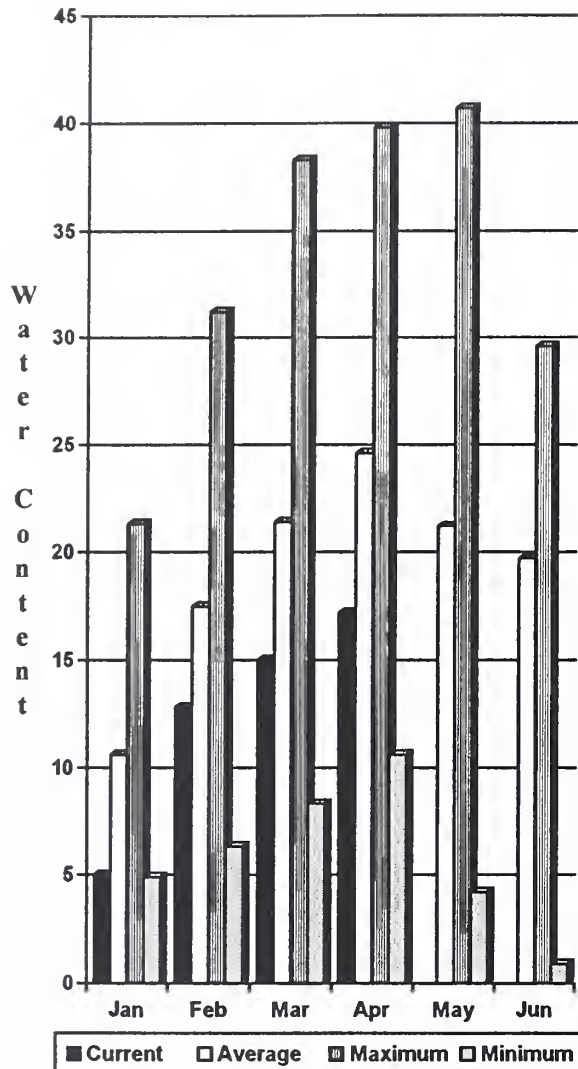
## WASHINGTON COOPERATIVE SNOW SURVEYS



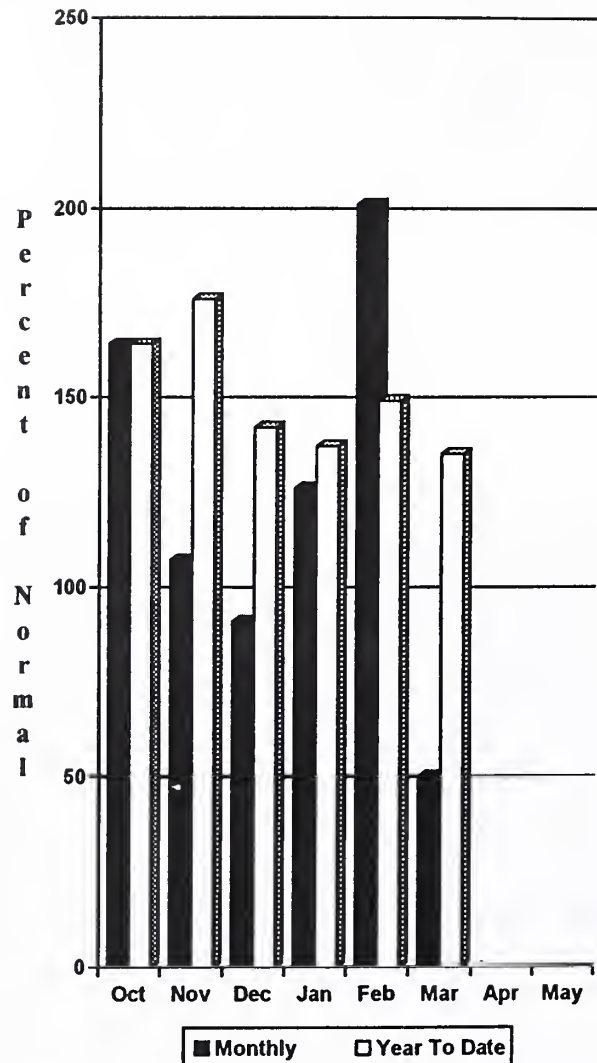
John Gillies, NRCS & Andreas Kammereck, Whatcom County  
Ground Truth Survey at Wells Creek SNOTEL Site



Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin averaged 85% of normal, similar to last year at the same time. The forecast is based on a basin snowpack that is 70% of average and precipitation that is 135% of normal for the water year. March precipitation was 50% of average. However Spokane Airport received 104% of normal precipitation. Streamflow on the Spokane River was 114% of average for March. April 1 storage in Coeur d'Alene Lake was 141,700 acre feet, 83% of normal, and 59% of capacity. This level is down considerably from last month.

For more information contact your local Natural Resources Conservation Service office.



# SPOKANE RIVER BASIN

## Streamflow Forecasts - April 1, 1996

|                             |                 | <<===== Drier ===== Future Conditions ===== Wetter =====>> |          |                                 |          |          |          |            |
|-----------------------------|-----------------|------------------------------------------------------------|----------|---------------------------------|----------|----------|----------|------------|
| Forecast Point              | Forecast Period | 90% 70%                                                    |          | Chance Of Exceeding *           |          | 30% 10%  |          | 30-Yr Avg. |
|                             |                 | (1000AF)                                                   | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF) | (1000AF) |            |
| SPOKANE near Post Falls (2) | APR-SEP         | 1848                                                       | 2117     | 2300                            | 84       | 2483     | 2752     | 2730       |
|                             | APR-JUL         | 1789                                                       | 2052     | 2230                            | 85       | 2408     | 2671     | 2633       |
| SPOKANE at Long Lake        | APR-JUL         | 2028                                                       | 2318     | 2515                            | 86       | 2712     | 3002     | 2936       |
|                             | APR-SEP         | 2195                                                       | 2496     | 2700                            | 86       | 2904     | 3205     | 3159       |

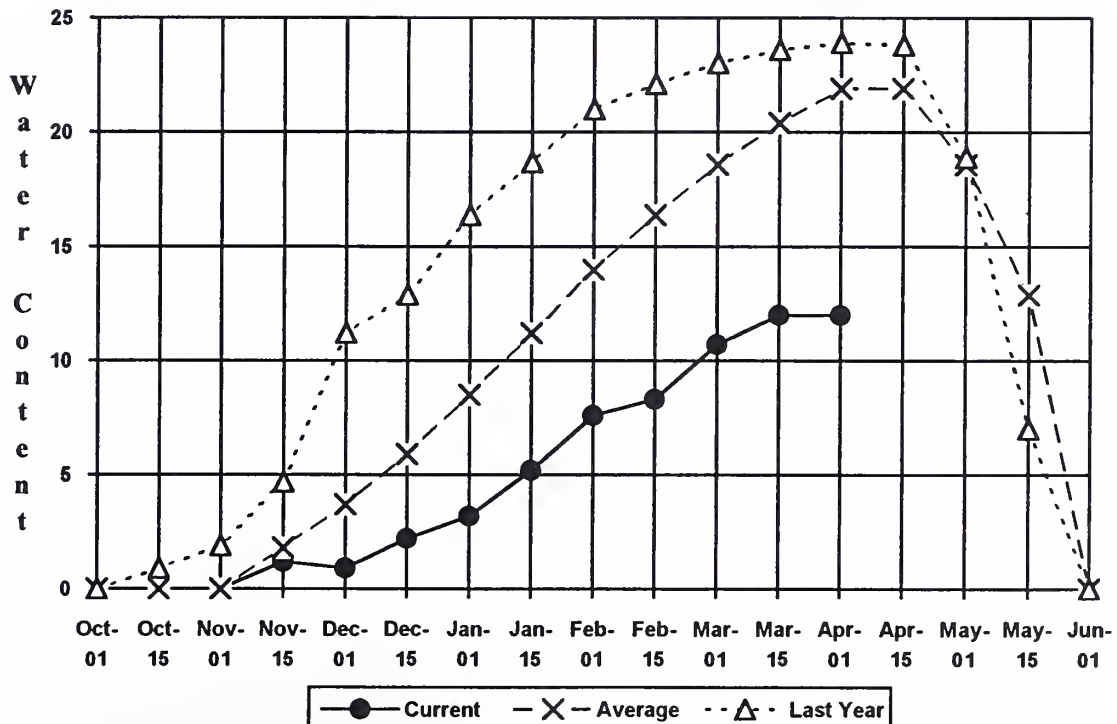
| SPOKANE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |       | SPOKANE RIVER BASIN<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|-------------------------------------------------------------------|-----------------|------------------------|-----------|-------|--------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                         | Usable Capacity | *** Usable Storage *** |           |       | Watershed                                                          | Number of Data Sites | This Year as % of |         |
|                                                                   |                 | This Year              | Last Year | Avg   |                                                                    |                      | Last Yr           | Average |
| COEUR D'ALENE                                                     | 238.5           | 141.7                  | 201.5     | 170.1 | Spokane River                                                      | 19                   | 94                | 70      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

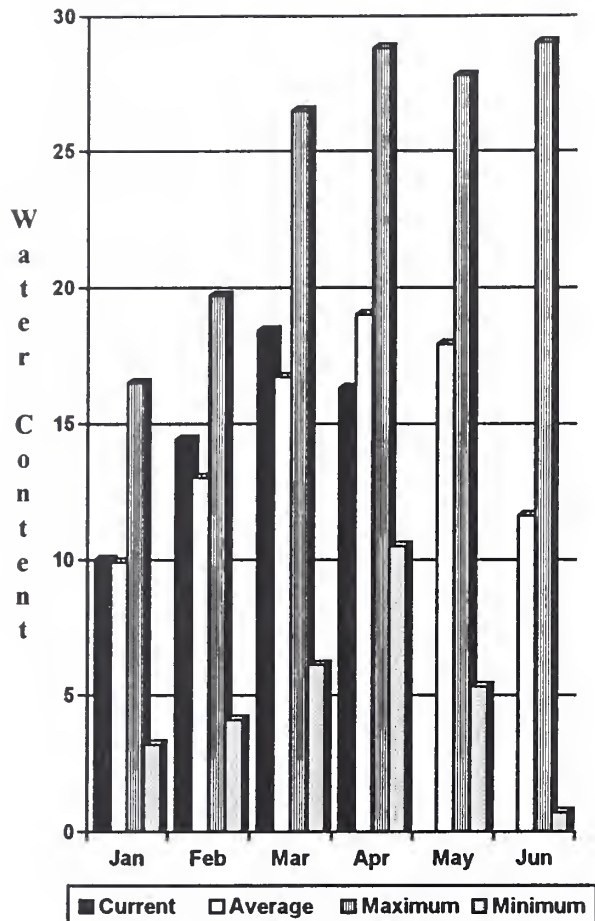
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

### Quartz Peak SNOTEL Elevation 4700 ft.

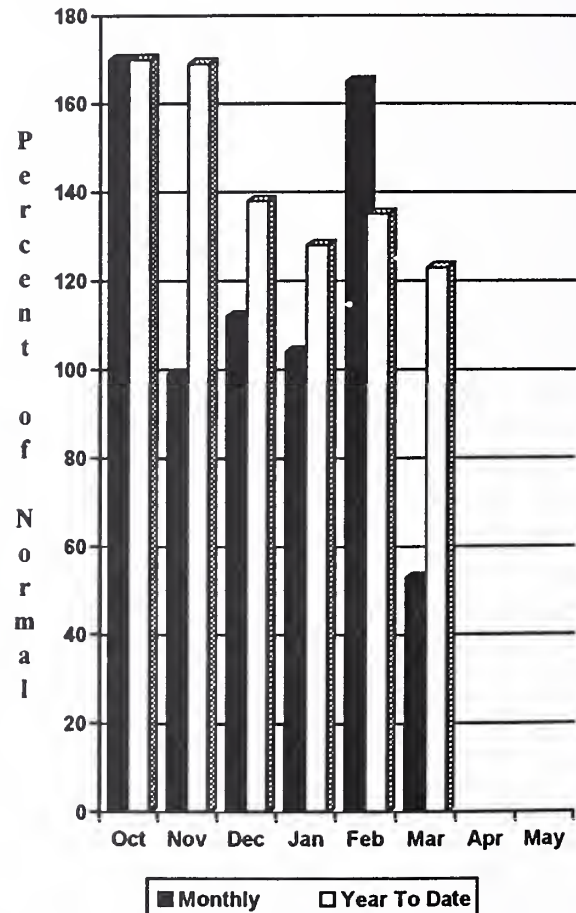


# Colville - Pend Oreille River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Forecasts for the basin are essentially unchanged from last month. Spring and summer forecast for the Kettle River streamflow is for 130% of normal; the Pend Oreille, below Box Canyon, 104%; and Priest River, near the town of Priest River, 103% of normal. Forecast for the Columbia River at Birchbank is for runoff to be 113% of normal. March streamflow was 133% of normal on the Pend Oreille River; 130% on the Columbia at the International Boundary; and 207% on the Kettle River. April 1 snow cover was 100% of normal for the Pend Oreille Basin, 95% for the Kettle River Basin and 63% for the Colville Basin. Precipitation during March was 53% of average, bringing the water year-to-date to 123% of normal.

For more information contact your local Natural Resources Conservation Service office.



# COLVILLE - PEND OREILLE RIVER BASINS

## Streamflow Forecasts - April 1, 1996

|                                   |                 | <<----- Drier ----- Future Conditions ----- Wetter ----->> |                 |                                          |     |                 |                 |                        |  |
|-----------------------------------|-----------------|------------------------------------------------------------|-----------------|------------------------------------------|-----|-----------------|-----------------|------------------------|--|
| Forecast Point                    | Forecast Period | Chance Of Exceeding *                                      |                 |                                          |     |                 |                 | 30-Yr Avg.<br>(1000AF) |  |
|                                   |                 | 90%<br>(1000AF)                                            | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) (% AVG.) |     | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| PEND OREILLE Lake Inflow (1,2)    | APR-JUL         | 11248                                                      | 13072           | 13900                                    | 106 | 14728           | 16552           | 13150                  |  |
|                                   | APR-SEP         | 12298                                                      | 14294           | 15200                                    | 106 | 16106           | 18102           | 14370                  |  |
|                                   | APR-JUN         | 9565                                                       | 11288           | 12070                                    | 106 | 12852           | 14575           | 11390                  |  |
| PRIEST nr Priest River (1,2)      | APR-JUL         | 628                                                        | 770             | 835                                      | 103 | 900             | 1042            | 814                    |  |
|                                   | APR-SEP         | 669                                                        | 821             | 890                                      | 103 | 959             | 1111            | 868                    |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| PEND OREILLE b1 Box Canyon (1,2)  | APR-JUL         | 11370                                                      | 13041           | 13800                                    | 103 | 14559           | 16230           | 13380                  |  |
|                                   | APR-SEP         | 12110                                                      | 14272           | 15100                                    | 104 | 15928           | 18092           | 14590                  |  |
|                                   | APR-JUN         | 9909                                                       | 11347           | 12000                                    | 104 | 12653           | 14091           | 11570                  |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| CHAMOKANE CK nr Long Lake         | MAY-AUG         | 4.62                                                       | 7.59            | 9.60                                     | 102 | 11.61           | 14.58           | 9.40                   |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| COLVILLE at Kettle Falls          | APR-SEP         | 82                                                         | 111             | 130                                      | 99  | 149             | 178             | 131                    |  |
|                                   | APR-JUL         | 80                                                         | 104             | 120                                      | 100 | 136             | 160             | 120                    |  |
|                                   | APR-JUN         | 75                                                         | 96              | 111                                      | 100 | 126             | 147             | 111                    |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| KETTLE near Laurier               | APR-SEP         | 2125                                                       | 2295            | 2410                                     | 130 | 2525            | 2695            | 1854                   |  |
|                                   | APR-JUL         | 2039                                                       | 2189            | 2290                                     | 130 | 2391            | 2541            | 1761                   |  |
|                                   | APR-JUN         | 1904                                                       | 2035            | 2125                                     | 134 | 2215            | 2346            | 1585                   |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| COLUMBIA at Birchbank (1,2)       | APR-JUL         | 35408                                                      | 38291           | 39600                                    | 113 | 40909           | 43792           | 35140                  |  |
|                                   | APR-SEP         | 44149                                                      | 47760           | 49400                                    | 113 | 51040           | 54651           | 43810                  |  |
|                                   | APR-JUN         | 25966                                                      | 28052           | 29000                                    | 113 | 29948           | 32034           | 25670                  |  |
|                                   |                 |                                                            |                 |                                          |     |                 |                 |                        |  |
| COLUMBIA at Grand Coulee Dm (1,2) | APR-SEP         | 64652                                                      | 70530           | 73200                                    | 113 | 75870           | 81748           | 64850                  |  |
|                                   | APR-JUL         | 53832                                                      | 58761           | 61000                                    | 112 | 63239           | 68168           | 54543                  |  |
|                                   | APR-JUN         | 42315                                                      | 46156           | 47900                                    | 112 | 49644           | 53485           | 42756                  |  |

COLVILLE - PEND OREILLE RIVER BASINS  
Reservoir Storage (1000 AF) - End of March

COLVILLE - PEND OREILLE RIVER BASINS  
Watershed Snowpack Analysis - April 1, 1996

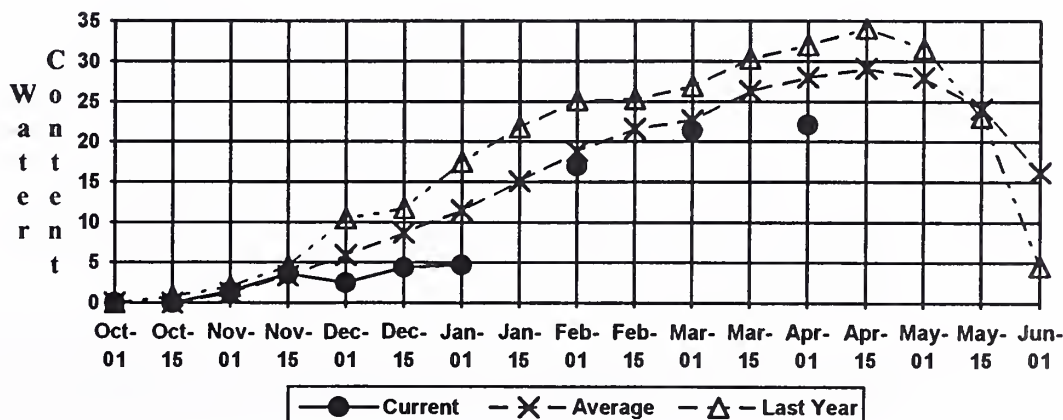
| Reservoir | Usable Capacity | *** Usable Storage *** |           |      | Watershed          | Number of Data Sites | This Year as % of |         |
|-----------|-----------------|------------------------|-----------|------|--------------------|----------------------|-------------------|---------|
|           |                 | This Year              | Last Year | Avg  |                    |                      | Last Yr           | Average |
| ROOSEVELT | 5232            | 1971.5                 | 3313.7    | 1586 | Colville River     | 3                    | 52                | 63      |
| BANKS     | 715             | 648.0                  | 688.2     | 583  | Pend Oreille River | 103                  | 126               | 101     |
|           |                 |                        |           |      | Kettle River       | 11                   | 102               | 95      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

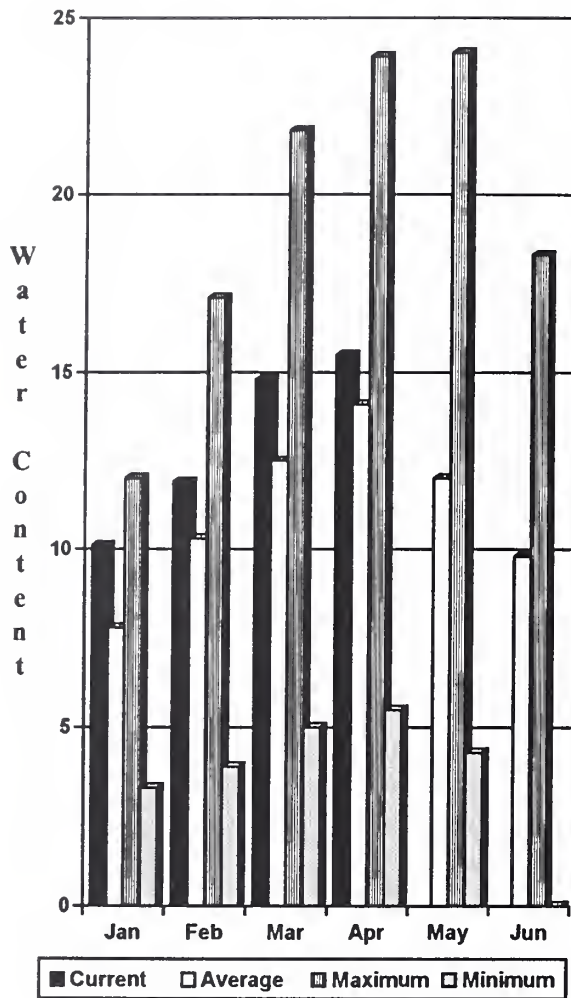
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

## Bunchgrass Meadow SNOTEL Elevation 5000 ft.

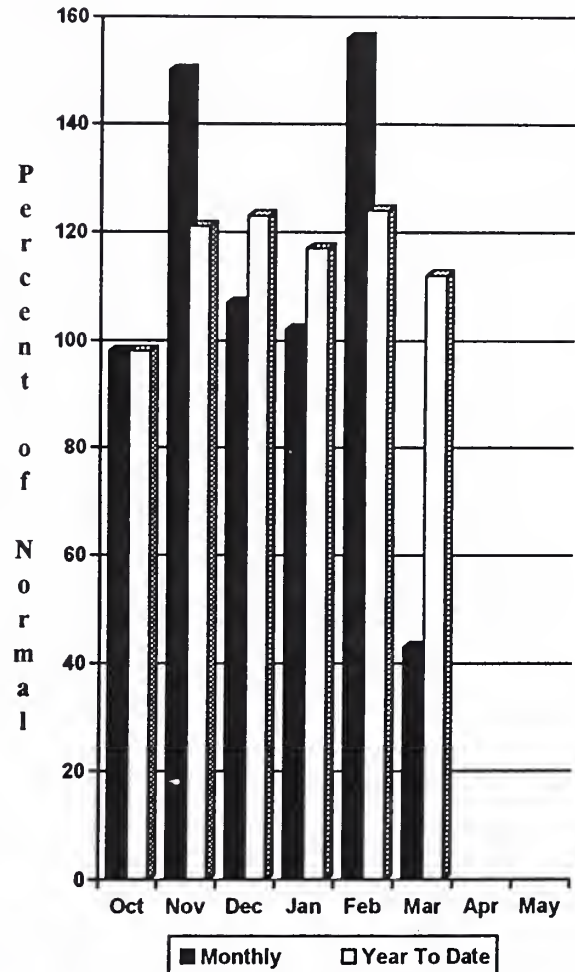


# Okanogan - Methow River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Summer runoff forecast for the Okanogan River is 120% of normal; the Similkameen River, 123%; the Methow River, 129%; and Salmon Creek, 110% of normal. April 1 snow cover in the Okanogan Basin was 104% of normal, and in the Methow, 115%. March precipitation in the Okanogan-Methow was only 43% of normal, with water year-to-date at 112% of average. March streamflow on the Methow River was 181% of normal; 213% on the Okanogan River; and 216% on the Similkameen. Snow-water-content at Harts Pass SNOTEL, elevation 6,500 feet, was 53 inches. Normal for this site is 41.3 inches. Storage in the Conconully Reservoirs was 18,800 acre feet, which is 80% of capacity and 125% of the April 1 average.

For more information contact your local Natural Resources Conservation Service office.



# OKANOGAN - METHOW RIVER BASINS

## Streamflow Forecasts - April 1, 1996

|                                |                 | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                                 |          |                 |                 |                        |  |  |
|--------------------------------|-----------------|------------------------------------------------------------|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|--|--|
| Forecast Point                 | Forecast Period | Chance Of Exceeding *                                      |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |  |  |
|                                |                 | 90%<br>(1000AF)                                            | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |  |  |
| SIMILKAMEEN nr Nighthawk (1)   | APR-SEP         | 1413                                                       | 1626            | 1720                            | 123      | 1814            | 2085            | 1399                   |  |  |
|                                | APR-JUL         | 1318                                                       | 1512            | 1600                            | 123      | 1688            | 1882            | 1304                   |  |  |
|                                | APR-JUN         | 1102                                                       | 1286            | 1370                            | 123      | 1454            | 1638            | 1113                   |  |  |
| OKANOGAN RIVER nr Tonasket (1) | APR-SEP         | 1380                                                       | 1756            | 1940                            | 120      | 2124            | 2501            | 1624                   |  |  |
|                                | APR-JUL         | 1260                                                       | 1614            | 1775                            | 121      | 1936            | 2290            | 1467                   |  |  |
|                                | APR-JUN         | 1094                                                       | 1366            | 1490                            | 121      | 1614            | 1886            | 1234                   |  |  |
| SALMON CREEK near Conconully   | APR-JUL         | 9.3                                                        | 16.3            | 21                              | 110      | 26              | 33              | 19.1                   |  |  |
|                                | APR-SEP         | 9. .                                                       | 17.0            | 22                              | 110      | 27              | 34              | 20                     |  |  |
| METHOW RIVER near Pateros      | APR-SEP         | 970                                                        | 1167            | 1215                            | 129      | 1263            | 1460            | 942                    |  |  |
|                                | APR-JUL         | 1020                                                       | 1083            | 1125                            | 129      | 1167            | 1230            | 873                    |  |  |
|                                | APR-JUN         | 862                                                        | 920             | 960                             | 129      | 1000            | 1058            | 746                    |  |  |

| OKANOGAN - METHOW RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |     | OKANOGAN - METHOW RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|------------------------------------------------------------------------------|-----------------|------------------------|-----------|-----|-------------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                    | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                                                     | Number of Data Sites | This Year as % of |         |
|                                                                              |                 | This Year              | Last Year | Avg |                                                                               |                      | Last Yr           | Average |
| SALMON LAKE                                                                  | 10.5            | 8.25                   | 8.1       | 8.0 | Okanogan River                                                                | 30                   | 100               | 104     |
| CONCONULLY RESERVOIR                                                         | 13.0            | 10.57                  | 7.6       | 7.0 | Methow River                                                                  | 4                    | 82                | 115     |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

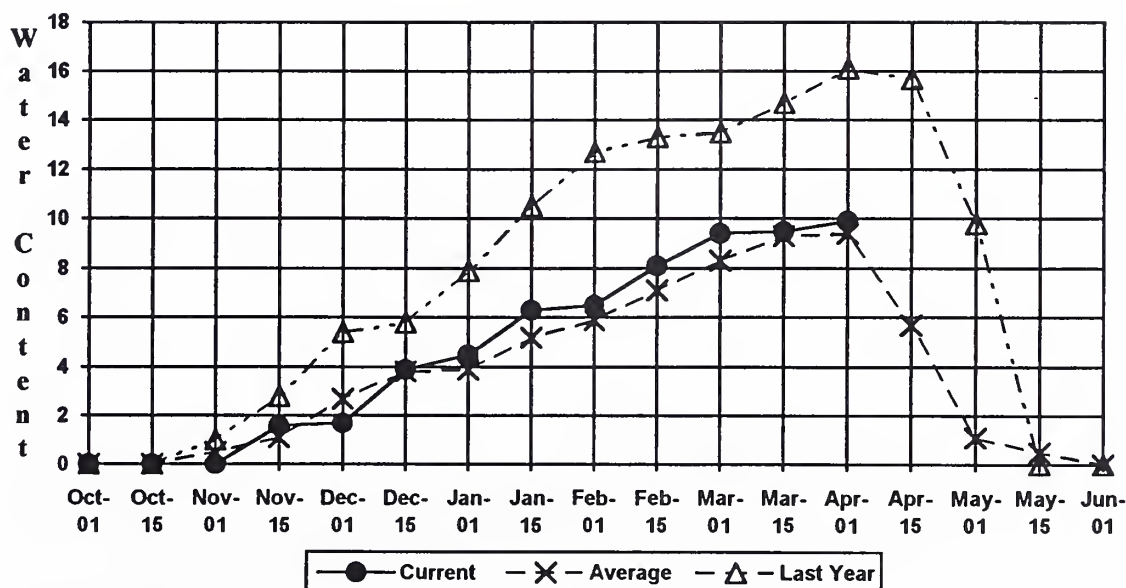
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

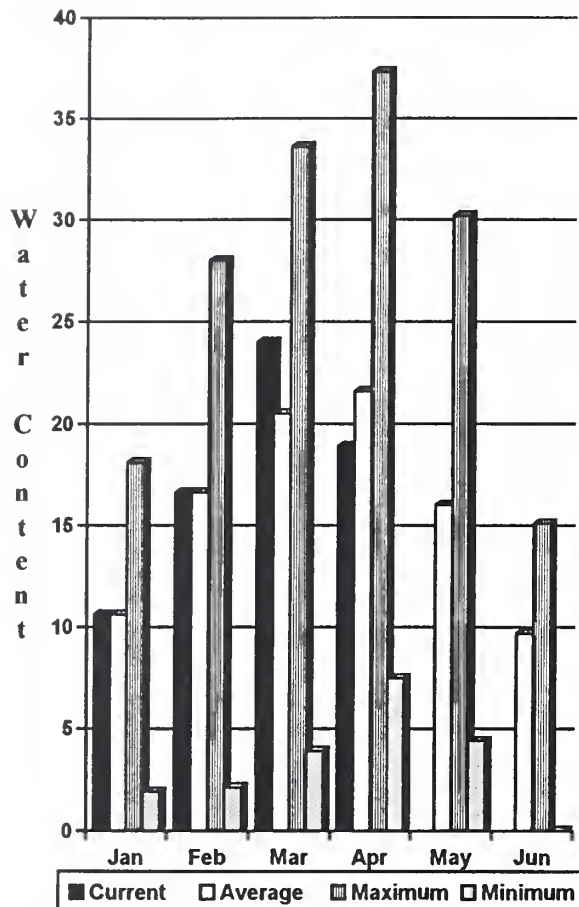
## Salmon Meadows SNOTEL

### Elevation 4500 ft.

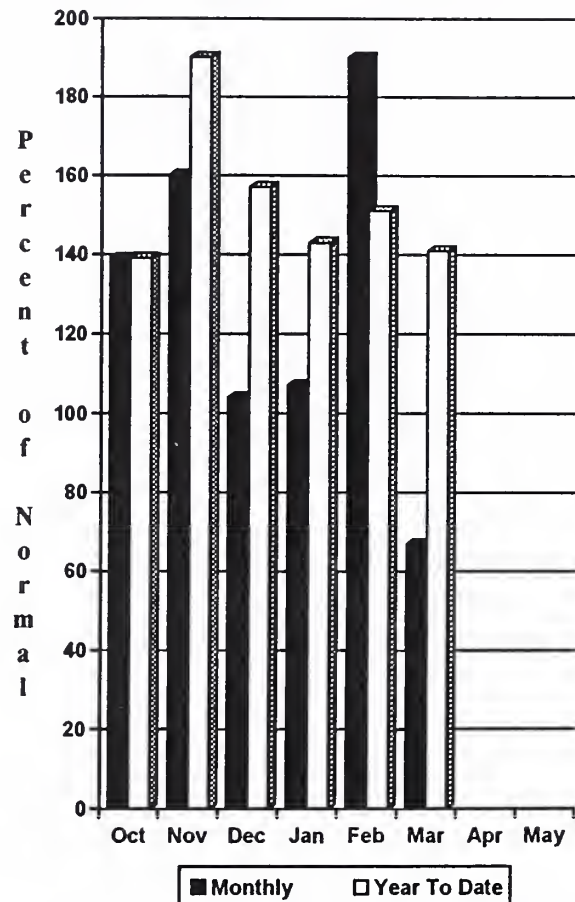


# Wenatchee - Chelan River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Precipitation during March was 67% of normal in the basin and 141% for the year-to-date. Runoff for the Entiat River is forecast to be 131% of normal for the summer. The April-September forecast for the Chelan River is for 111% of normal; for the Wenatchee River, 108%; and 112% for the Stehekin. Icicle Creek is forecast to be near normal this summer. Streamflow for March on the Chelan River was 171% of average; on the Wenatchee River it was 168% of normal. April 1 snowpack in the Wenatchee Basin was 93% of average. The Chelan Basin was 117% of average, and Stemilt Creek Watershed was at 87% of normal. Snowpack in the Entiat River Basin was at 145% of average. Reservoir storage in Lake Chelan was 462,000 acre feet or 218% of the April 1 average and 68% of capacity. Lyman Lake SNOTEL had the most snow water with 67.1 inches of water. This site normally has 56.9 inches and last year it had 75.1 inches on April 1.

For more information contact your local Natural Resources Conservation Service office.

# **WENATCHEE - CHELAN RIVER BASINS** Streamflow Forecasts - April 1, 1996

| Forecast Point                     | Forecast Period | <<----- Drier -----   |                 | Future Conditions -----         |          | ----- Wetter ----->> |                 | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
|                                    |                 | Chance Of Exceeding * |                 |                                 |          |                      |                 |                        |
|                                    |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF)      | 10%<br>(1000AF) |                        |
| CHELAN RIVER near Chelan           | APR-SEP         | 1154                  | 1235            | 1290                            | 111      | 1345                 | 1426            | 1160                   |
|                                    | APR-JUL         | 1024                  | 1093            | 1140                            | 111      | 1187                 | 1256            | 1024                   |
|                                    | APR-JUN         | 782                   | 852             | 900                             | 111      | 948                  | 1018            | 812                    |
| STEHEKIN near STEHEKIN             | APR-SEP         | 829                   | 886             | 925                             | 112      | 964                  | 1021            | 827                    |
|                                    | APR-JUL         | 708                   | 754             | 785                             | 112      | 816                  | 862             | 701                    |
|                                    | APR-JUN         | 522                   | 569             | 600                             | 112      | 631                  | 678             | 538                    |
| ENTIAT RIVER near Ardenvoir        | APR-SEP         | 273                   | 288             | 298                             | 131      | 308                  | 323             | 227                    |
|                                    | APR-JUL         | 246                   | 260             | 270                             | 131      | 280                  | 294             | 206                    |
|                                    | APR-JUN         | 197                   | 211             | 220                             | 130      | 229                  | 243             | 169                    |
| WENATCHEE at Plain                 | APR-SEP         | 1146                  | 1231            | 1289                            | 108      | 1347                 | 1432            | 1190                   |
|                                    | APR-JUL         | 1039                  | 1107            | 1153                            | 108      | 1199                 | 1267            | 1072                   |
|                                    | APR-JUN         | 844                   | 899             | 936                             | 108      | 973                  | 1028            | 864                    |
| WENATCHEE R. at Peshastin          | APR-SEP         | 1164                  | 1471            | 1680                            | 103      | 1889                 | 2196            | 1636                   |
|                                    | APR-JUL         | 1034                  | 1311            | 1500                            | 101      | 1689                 | 1966            | 1485                   |
|                                    | APR-JUN         | 865                   | 1088            | 1240                            | 103      | 1392                 | 1615            | 1204                   |
| STEMILT nr Wenatchee (miners in)   | MAY-SEP         | 100                   | 126             | 144                             | 104      | 162                  | 188             | 138                    |
| ICICLE CREEK nr Leavenworth        | APR-SEP         | 252                   | 322             | 370                             | 100      | 418                  | 488             | 370                    |
|                                    | APR-JUL         | 232                   | 296             | 340                             | 100      | 384                  | 448             | 340                    |
|                                    | APR-JUN         | 184                   | 235             | 270                             | 100      | 305                  | 356             | 270                    |
| COLUMBIA R. bl Rock Island Dam (2) | APR-SEP         | 70678                 | 76229           | 80000                           | 114      | 83771                | 89322           | 70485                  |
|                                    | APR-JUL         | 59224                 | 63914           | 67100                           | 112      | 70286                | 74976           | 59736                  |
|                                    | APR-JUN         | 46492                 | 50158           | 52650                           | 112      | 55142                | 58808           | 47007                  |

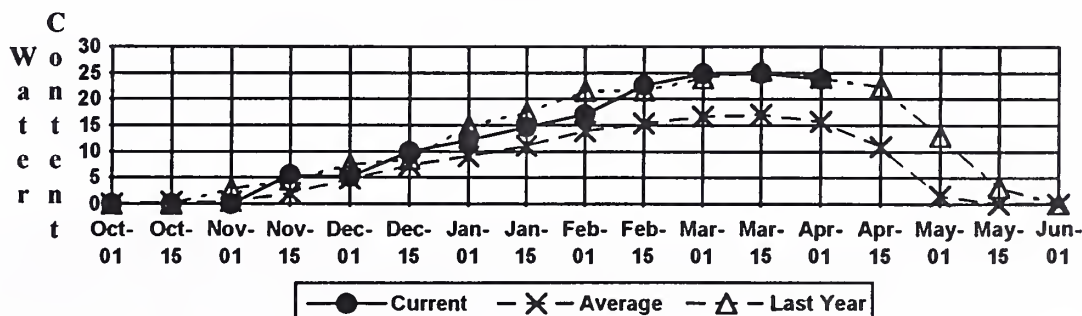
| WENATCHEE - CHELAN RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |       | WENATCHEE - CHELAN RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|-------------------------------------------------------------------------------|-----------------|------------------------|-----------|-------|--------------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                     | Usable Capacity | *** Usable Storage *** |           |       | Watershed                                                                      | Number of Data Sites | This Year as % of |         |
|                                                                               |                 | This Year              | Last Year | Avg   |                                                                                |                      | Last Yr           | Average |
| CHELAN LAKE                                                                   | 676.1           | 462.0                  | 270.4     | 212.1 | Chelan Lake Basin                                                              | 4                    | 99                | 117     |
|                                                                               |                 |                        |           |       | Entiat River                                                                   | 2                    | 89                | 145     |
|                                                                               |                 |                        |           |       | Wenatchee River                                                                | 13                   | 81                | 93      |
|                                                                               |                 |                        |           |       | Squilchuck Creek                                                               | 0                    | 0                 | 0       |
|                                                                               |                 |                        |           |       | Stemilt Creek                                                                  | 2                    | 74                | 87      |
|                                                                               |                 |                        |           |       | Colockum Creek                                                                 | 1                    | 86                | 134     |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

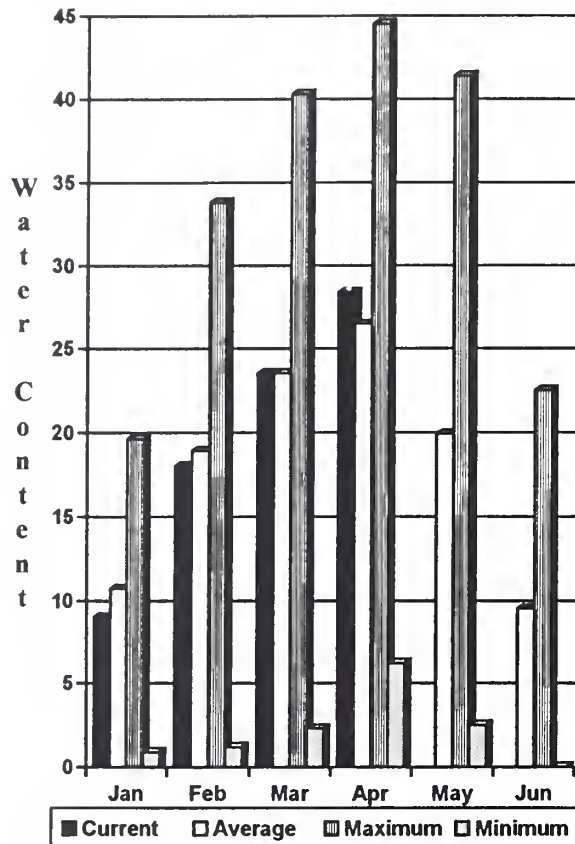
## Pope Ridge SNOTEL Elevation 3540 ft.



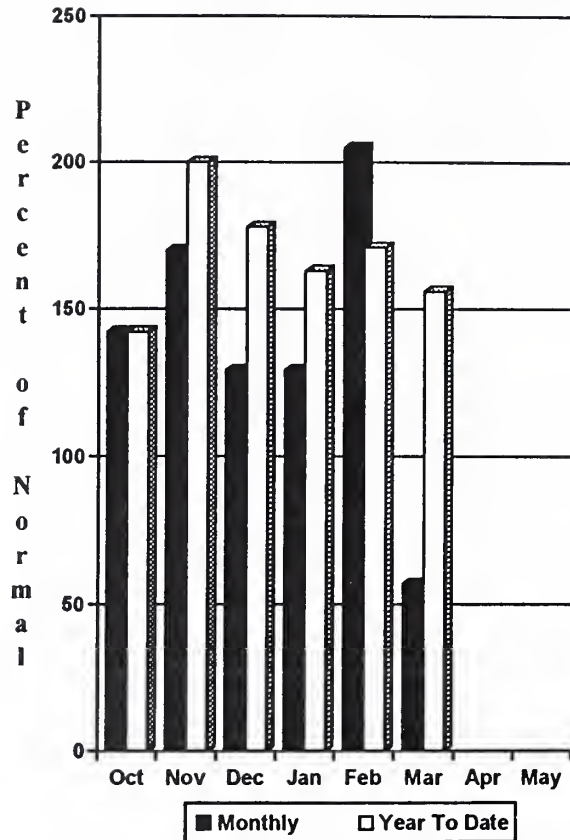


# Yakima River Basin

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

April 1 reservoir storage for the five major reservoirs was 911,400 acre feet, 123% of average. April 1 summer streamflow forecasts are for near to above normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 103% of normal; Naches River, 105%; the Yakima River at Parker, 102%; Ahtanum Creek, 107%; and the Tieton River, 105%. The Klickitat River near Glenwood is forecast at 123% of normal flows this summer. March streamflows within the basin were; the Yakima River at Parker, 149% of normal; the Yakima near Cle Elum, 128%; and the Naches River at 156%. April 1 snowpack was 84%, based upon 22 snow courses and SNOTEL readings within the Yakima Basin. Precipitation was 57% of normal for March and 156% for the water year-to-date. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

# YAKIMA RIVER BASIN

## Streamflow Forecasts - April 1, 1996

| Forecast Point               | Forecast<br>Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> |          |                       |          |          |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------|--------------------|------------------------------------------------------------|----------|-----------------------|----------|----------|----------|------------------------|
|                              |                    | 90% 70%                                                    |          | Chance Of Exceeding * |          | 30% 10%  |          |                        |
|                              |                    | (1000AF)                                                   | (1000AF) | (1000AF)              | (% AVG.) | (1000AF) | (1000AF) |                        |
| KEECHELUS LAKE INFLOW        | APR-JUL            | 107                                                        | 117      | 124                   | 100      | 131      | 141      | 124                    |
|                              | APR-SEP            | 115                                                        | 127      | 135                   | 100      | 143      | 155      | 135                    |
|                              | APR-JUN            | 91                                                         | 102      | 109                   | 100      | 116      | 127      | 109                    |
| KACHESS LAKE INFLOW          | APR-JUL            | 98                                                         | 106      | 111                   | 100      | 116      | 124      | 111                    |
|                              | APR-SEP            | 101                                                        | 110      | 116                   | 98       | 122      | 131      | 118                    |
|                              | APR-JUN            | 86                                                         | 95       | 101                   | 102      | 107      | 116      | 99                     |
| CLE ELUM LAKE INFLOW         | APR-JUL            | 396                                                        | 418      | 433                   | 106      | 448      | 470      | 409                    |
|                              | APR-SEP            | 423                                                        | 448      | 465                   | 104      | 482      | 507      | 448                    |
|                              | APR-JUN            | 326                                                        | 349      | 365                   | 106      | 381      | 404      | 345                    |
| YAKIMA at Cle Elum           | APR-JUN            | 672                                                        | 718      | 750                   | 104      | 782      | 828      | 721                    |
|                              | APR-JUL            | 795                                                        | 837      | 865                   | 104      | 893      | 935      | 832                    |
|                              | APR-SEP            | 861                                                        | 908      | 940                   | 103      | 972      | 1019     | 915                    |
| BUMPING LAKE INFLOW          | APR-SEP            | 127                                                        | 135      | 140                   | 103      | 145      | 153      | 136                    |
|                              | APR-JUL            | 116                                                        | 123      | 128                   | 103      | 133      | 140      | 124                    |
|                              | APR-JUN            | 92                                                         | 101      | 107                   | 103      | 113      | 122      | 104                    |
| AMERICAN RIVER near Nile     | APR-SEP            | 105                                                        | 112      | 117                   | 99       | 122      | 129      | 118                    |
|                              | APR-JUL            | 95                                                         | 102      | 107                   | 98       | 112      | 119      | 109                    |
|                              | APR-JUN            | 76                                                         | 85       | 91                    | 99       | 97       | 105      | 92                     |
| RIMROCK LAKE INFLOW          | APR-SEP            | 225                                                        | 240      | 250                   | 105      | 260      | 275      | 238                    |
|                              | APR-JUL            | 191                                                        | 202      | 210                   | 105      | 218      | 229      | 200                    |
|                              | APR-JUN            | 148                                                        | 161      | 170                   | 105      | 179      | 192      | 162                    |
| NACHES near Naches           | APR-SEP            | 797                                                        | 840      | 870                   | 105      | 900      | 943      | 832                    |
|                              | APR-JUL            | 729                                                        | 771      | 800                   | 106      | 829      | 871      | 755                    |
|                              | APR-JUN            | 602                                                        | 649      | 680                   | 105      | 711      | 758      | 651                    |
| AHTANUM CREEK nr Tampico (2) | APR-SEP            | 32                                                         | 42       | 49                    | 107      | 56       | 66       | 46                     |
|                              | APR-JUL            | 30                                                         | 39       | 45                    | 107      | 51       | 60       | 42                     |
|                              | APR-JUN            | 25                                                         | 33       | 39                    | 107      | 44       | 52       | 36                     |
| YAKIMA near Parker           | APR-SEP            | 1861                                                       | 1962     | 2030                  | 102      | 2098     | 2199     | 1994                   |
|                              | APR-JUL            | 1711                                                       | 1800     | 1860                  | 103      | 1920     | 2009     | 1805                   |
|                              | APR-JUN            | 1487                                                       | 1581     | 1645                  | 103      | 1709     | 1803     | 1597                   |
| KLICKITAT near Glenwood      | APR-JUN            | 118                                                        | 127      | 133                   | 121      | 139      | 148      | 110                    |
|                              | APR-SEP            | 150                                                        | 163      | 172                   | 123      | 181      | 194      | 140                    |

| YAKIMA RIVER BASIN<br>Reservoir Storage (1000 AF) - End of March |                 |                                     |           |       | YAKIMA RIVER BASIN<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                           |              |
|------------------------------------------------------------------|-----------------|-------------------------------------|-----------|-------|-------------------------------------------------------------------|----------------------|---------------------------|--------------|
| Reservoir                                                        | Usable Capacity | *** Usable Storage ***<br>This Year | Last Year | Avg   | Watershed                                                         | Number of Data Sites | This Year as % of Last Yr | % of Average |
| KEECHELUS                                                        | 157.8           | 137.9                               | 130.7     | 110.0 | Yakima River                                                      | 22                   | 78                        | 84           |
| KACHESS                                                          | 239.0           | 220.5                               | 130.9     | 187.0 | Ahtanum Creek                                                     | 2                    | 81                        | 104          |
| CLE ELUM                                                         | 436.9           | 371.0                               | 246.0     | 290.0 |                                                                   |                      |                           |              |
| BUMPING LAKE                                                     | 33.7            | 15.6                                | 8.1       | 11.0  |                                                                   |                      |                           |              |
| RIMROCK                                                          | 198.0           | 166.4                               | 164.4     | 142.0 |                                                                   |                      |                           |              |

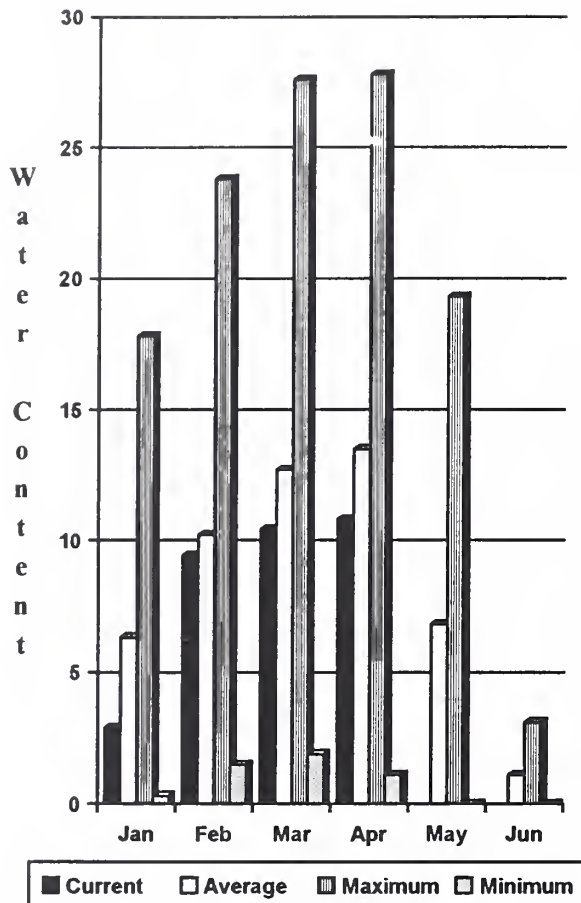
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

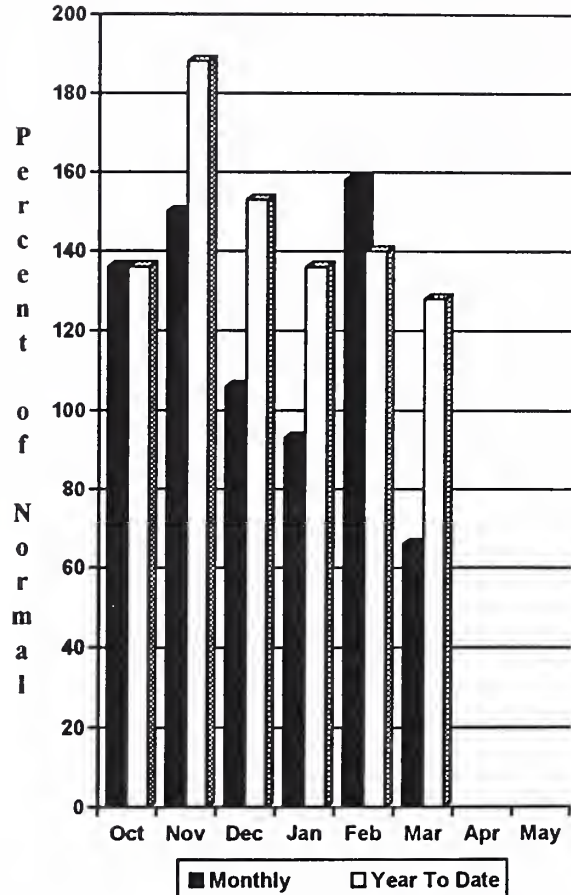
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# Walla Walla River Basin

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

March precipitation was 66% of average, bringing the year-to-date precipitation to 128% of normal. April 1 snowpack was 80% of average. The forecast is for 99% of average streamflow in the Walla Walla River for the coming summer; for the Grande Ronde at Troy, 98%; and 94% for Mill Creek. March streamflow was 195% of normal for the South Fork Walla Walla River; 153% for the Snake River; and 132% for the Grande Ronde River near Troy. The Touchet SNOTEL site had 27.6 inches of snow-water-equivalent. The normal April 1 reading for this site is 31.9 inches.

For more information contact your local Natural Resources Conservation Service office.



# WALLA WALLA RIVER BASIN

## Streamflow Forecasts - April 1, 1996

|                                    |                 | <<----- Drier ----- Future Conditions ----- Wetter ----->> |              |                              |          |              |              |                    |
|------------------------------------|-----------------|------------------------------------------------------------|--------------|------------------------------|----------|--------------|--------------|--------------------|
| Forecast Point                     | Forecast Period | Chance Of Exceeding *                                      |              |                              |          |              |              | 30-Yr Avg (1000AF) |
|                                    |                 | 90% (1000AF)                                               | 70% (1000AF) | 50% (Most Probable) (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) |                    |
| GRANDE RONDE at Troy (1)           | APR-JUL         | 923                                                        | 1083         | 1190                         | 98       | 1297         | 1602         | 1214               |
|                                    | APR-SEP         | 917                                                        | 1170         | 1285                         | 98       | 1400         | 1653         | 1312               |
| SNAKE b/w Lower Granite Dam (1,2)  | APR-JUL         | 16984                                                      | 20365        | 21900                        | 101      | 23435        | 26816        | 21650              |
|                                    | APR-SEP         | 19075                                                      | 22874        | 24600                        | 101      | 26326        | 30125        | 24360              |
| MILL CREEK at Walla Walla          | APR-SEP         | 10.1                                                       | 13.7         | 16.1                         | 94       | 18.5         | 22           | 17.1               |
|                                    | APR-JUL         | 9.9                                                        | 13.5         | 15.9                         | 94       | 18.3         | 22           | 16.9               |
|                                    | APR-JUN         | 9.9                                                        | 13.4         | 15.8                         | 95       | 18.2         | 22           | 16.7               |
| SF WALLA WALLA nr Milton Freewater | APR-JUL         | 45                                                         | 49           | 53                           | 99       | 56           | 61           | 53                 |
|                                    | APR-SEP         | 56                                                         | 61           | 65                           | 99       | 69           | 74           | 66                 |
| COLUMBIA R. at The Dalles (2)      | APR-SEP         | 90900                                                      | 98700        | 104000                       | 105      | 109300       | 117100       | 98982              |
|                                    | APR-JUL         | 75663                                                      | 82354        | 86900                        | 103      | 91446        | 98137        | 84760              |
|                                    | APR-JUN         | 61909                                                      | 67322        | 71000                        | 103      | 74678        | 80091        | 68925              |

| WALLA WALLA RIVER BASIN<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |     | WALLA WALLA RIVER BASIN<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|-----------------------------------------------------------------------|-----------------|------------------------|-----------|-----|------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                             | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                                              | Number of Data Sites | This Year as % of |         |
|                                                                       |                 | This Year              | Last Year | Avg |                                                                        |                      | Last Yr           | Average |
|                                                                       |                 |                        |           |     | Mill Creek                                                             | 2                    | 81                | 80      |

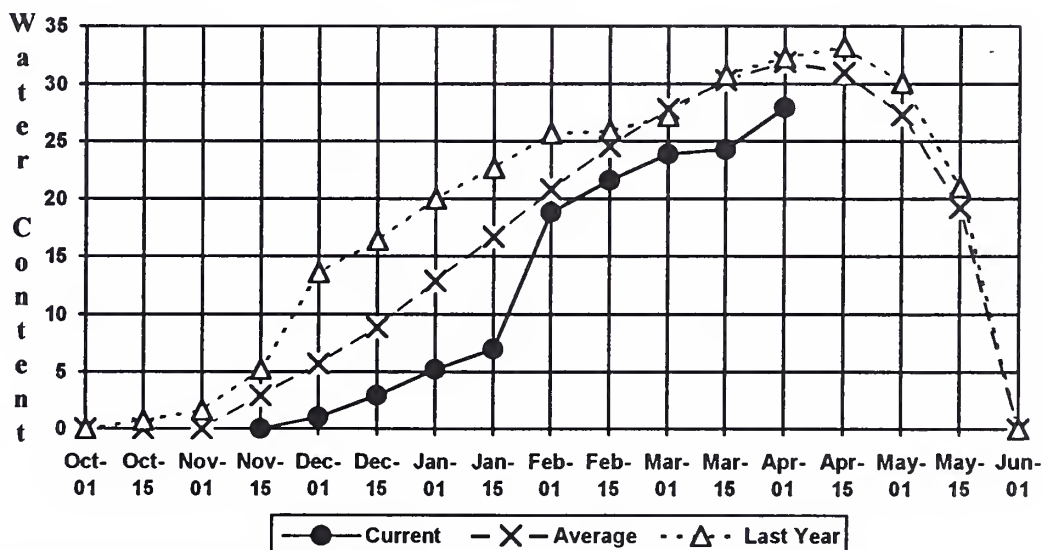
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

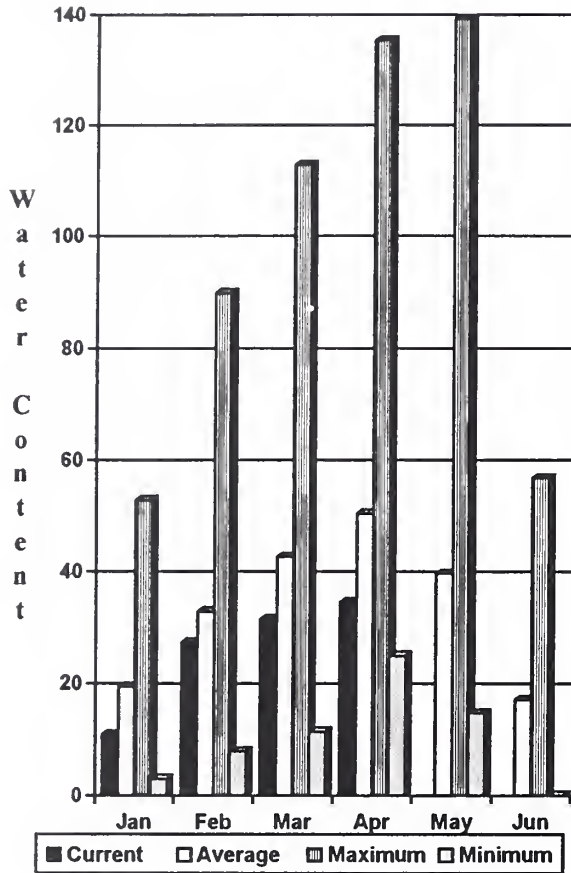
## Touchet #2 SNOTEL

### Elevation 5530 ft.

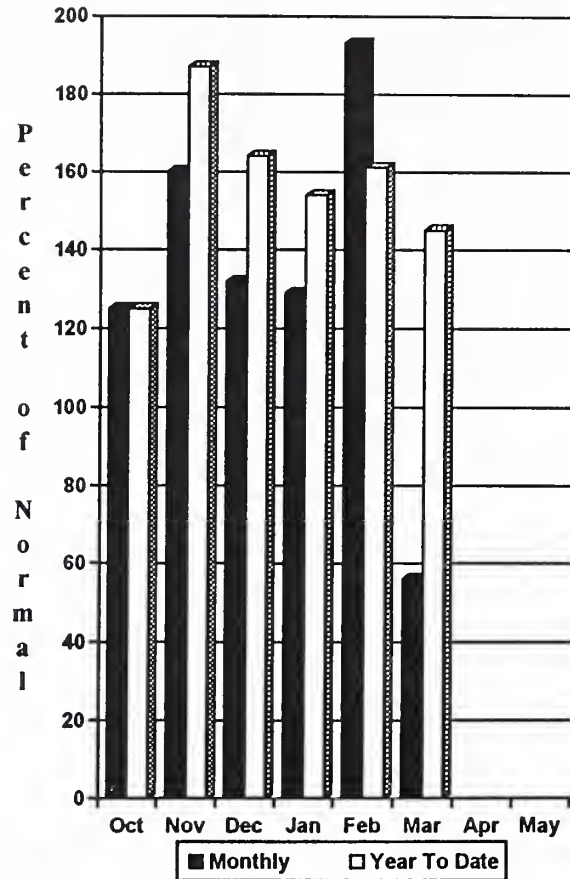


# Cowlitz - Lewis River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is 100% of normal; the Cowlitz River at Castle Rock is forecast for 101% of normal runoff. March streamflow for the Cowlitz River was 99% of average, and 92% for the Lewis River. March precipitation was 56% of normal, 145% of average for the water year. April 1 snow cover for the Cowlitz River Basin was 81%, and the Lewis River Basin was 56% of average, both down slightly from last month. The Paradise Park SNOTEL recorded the most water content for the basin with 56.4 inches of water. Normal April 1 water content is 62.1 inches.

For more information contact your local Natural Resources Conservation Service office.



# COWLITZ - LEWIS RIVER BASINS

## Streamflow Forecasts - April 1, 1996

|                                |                 | <<----- Drier ----- Future Conditions ----- Wetter ----->> |                 |                                 |          |                 |                 |                        |
|--------------------------------|-----------------|------------------------------------------------------------|-----------------|---------------------------------|----------|-----------------|-----------------|------------------------|
| Forecast Point                 | Forecast Period | Chance Of Exceeding *                                      |                 |                                 |          |                 |                 | 30-Yr Avg.<br>(1000AF) |
|                                |                 | 90%<br>(1000AF)                                            | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| LEWIS RIVER at Ariel (2)       | APR-SEP         | 867                                                        | 1065            | 1200                            | 100      | 1335            | 1533            | 1204                   |
|                                | APR-JUL         | 759                                                        | 932             | 1050                            | 100      | 1168            | 1341            | 1051                   |
|                                | APR-JUN         | 676                                                        | 829             | 933                             | 100      | 1037            | 1190            | 933                    |
| COWLITZ R. b1 Mayfield Dam (2) | APR-SEP         | 965                                                        | 1501            | 1820                            | 92       | 2139            | 2699            | 1970                   |
|                                | APR-JUL         | 911                                                        | 1321            | 1600                            | 92       | 1879            | 2289            | 1731                   |
|                                | APR-JUN         | 770                                                        | 1122            | 1360                            | 92       | 1598            | 1950            | 1477                   |
| COWLITZ R. at Castle Rock (2)  | APR-SEP         | 1520                                                       | 2292            | 2680                            | 101      | 3068            | 3920            | 2667                   |
|                                | APR-JUL         | 1503                                                       | 2001            | 2340                            | 101      | 2679            | 3177            | 2325                   |
|                                | APR-JUN         | 1295                                                       | 1724            | 2015                            | 101      | 2306            | 2735            | 1995                   |
| KLICKITAT near Glenwood        | APR-JUN         | 118                                                        | 127             | 133                             | 121      | 139             | 148             | 110                    |
|                                | APR-SEP         | 150                                                        | 163             | 172                             | 123      | 181             | 194             | 140                    |

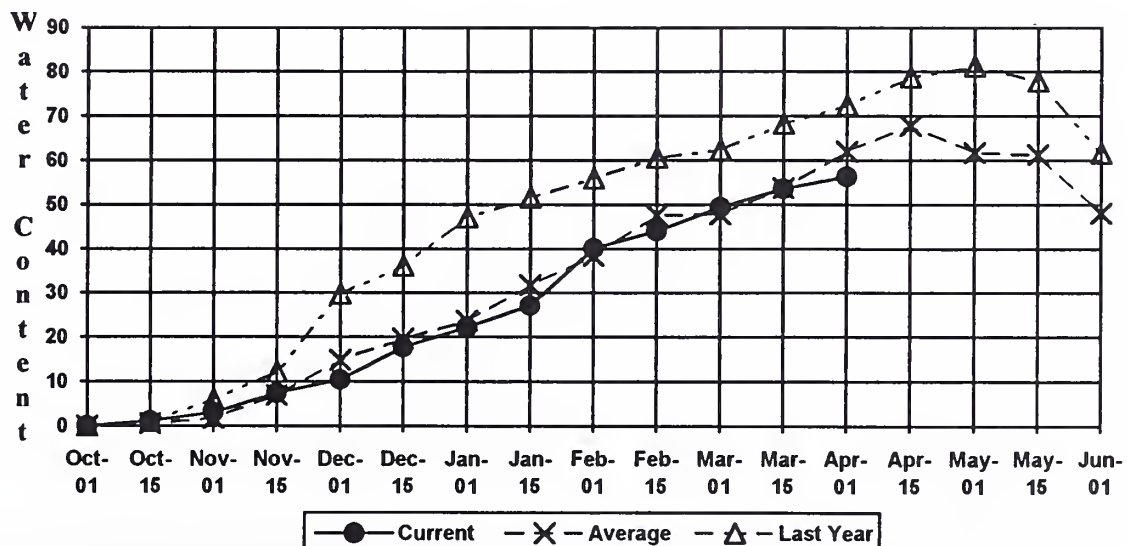
| COWLITZ - LEWIS RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |     | COWLITZ - LEWIS RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|----------------------------------------------------------------------------|-----------------|------------------------|-----------|-----|-----------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                  | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                                                   | Number of Data Sites | This Year as % of |         |
|                                                                            |                 | This Year              | Last Year | Avg |                                                                             |                      | Last Yr           | Average |
|                                                                            |                 |                        |           |     | Cowlitz River                                                               | 7                    | 82                | 81      |
|                                                                            |                 |                        |           |     | Lewis River                                                                 | 4                    | 59                | 56      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

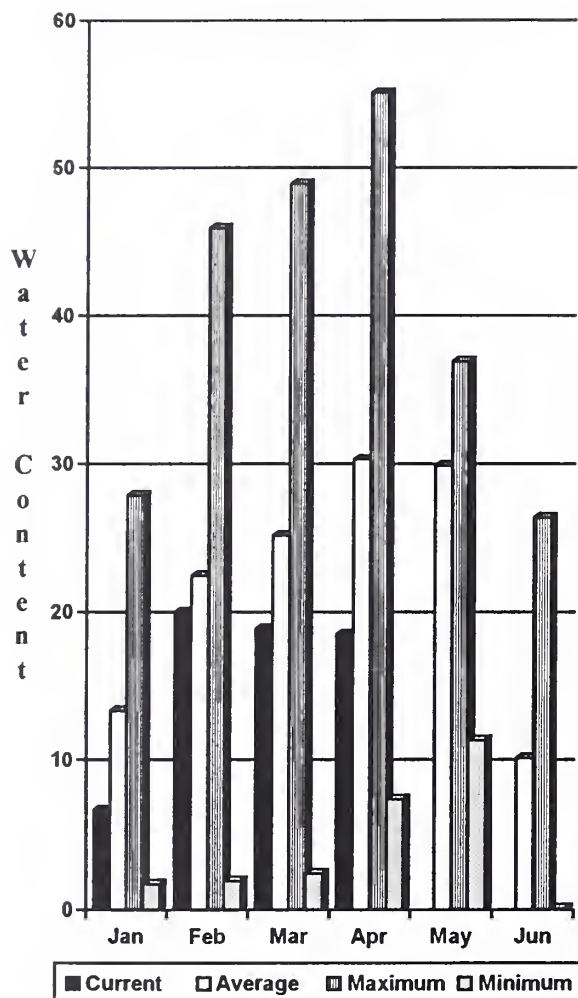
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Paradise SNOTEL Elevation 5120 ft.

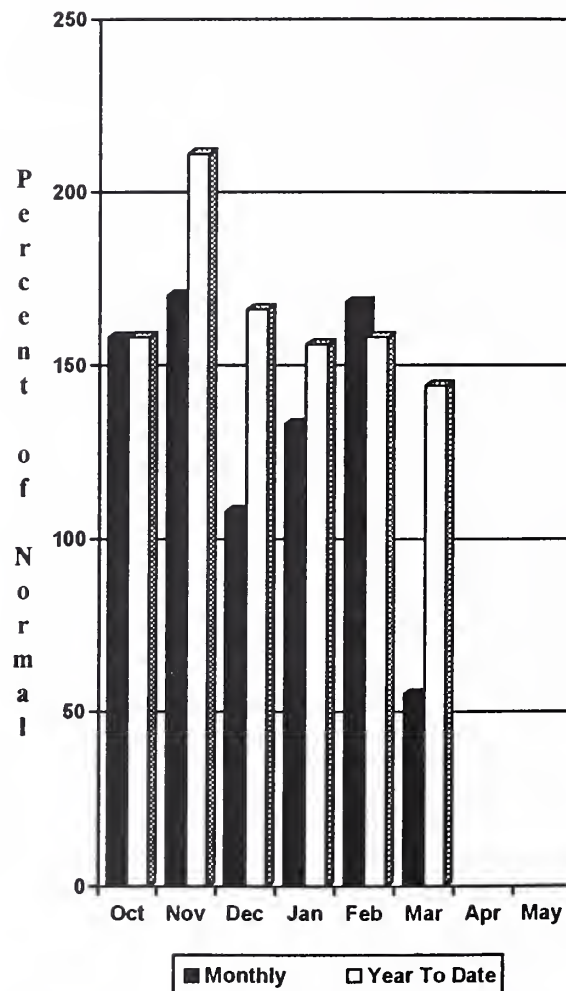


# White - Green - Cedar River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Summer runoff is forecast to be 90% of normal for the Green River; and 81% for the Cedar River near Cedar Falls; 81% for the Rex River; 85% for the South Fork of the Tolt River; and 84% for the Cedar River at Cedar Falls. All forecasts in the basin are down slightly from last month. April 1 snowpack was 96% of normal in the White River Basin, 51% in the Green River Basin, and 45% of normal in the Cedar River Basin. Water content on April 1 at the Morse Lake SNOTEL, at an elevation of 5,400 feet, was 46 inches. This site has a April 1 average of 47.2 inches and usually carries snow well into June. March precipitation was 55% of normal, bringing the water year-to-date to 144% of average for the Basin.

For more information contact your local Natural Resources Conservation Service office.



# WHITE - GREEN - CEDAR RIVER BASINS

## Streamflow Forecasts - April 1, 1996

|                                     |         | <<----- Drier ----- |                       | Future Conditions |                                          | ----- Wetter ----->> |                 |                 |                        |
|-------------------------------------|---------|---------------------|-----------------------|-------------------|------------------------------------------|----------------------|-----------------|-----------------|------------------------|
| Forecast Point                      |         | Forecast<br>Period  | Chance Of Exceeding * |                   |                                          |                      |                 |                 | 30-Yr Avg.<br>(1000AF) |
|                                     |         |                     | 90%<br>(1000AF)       | 70%<br>(1000AF)   | 50% (Most Probable)<br>(1000AF) (% AVG.) |                      | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
|                                     |         |                     |                       |                   |                                          |                      |                 |                 |                        |
| GREEN RIVER below Howard Hanson Dam | APR-JUL | 180                 | 210                   | 230               | 90                                       | 250                  | 280             | 257             |                        |
|                                     | APR-SEP | 206                 | 236                   | 257               | 90                                       | 278                  | 308             | 285             |                        |
|                                     | APR-JUN | 164                 | 191                   | 210               | 90                                       | 229                  | 256             | 234             |                        |
| CEDAR RIVER near Cedar Falls        | APR-JUL | 49                  | 57                    | 63                | 82                                       | 69                   | 77              | 77              |                        |
|                                     | APR-SEP | 54                  | 63                    | 69                | 81                                       | 75                   | 84              | 85              |                        |
|                                     | APR-JUN | 43                  | 51                    | 56                | 82                                       | 61                   | 69              | 68              |                        |
| REX RIVER near Cedar Falls          | APR-JUL | 15.8                | 19.4                  | 22                | 81                                       | 24                   | 28              | 27              |                        |
|                                     | APR-SEP | 18.6                | 22                    | 24                | 81                                       | 27                   | 30              | 30              |                        |
|                                     | APR-JUN | 15.0                | 18.2                  | 20                | 81                                       | 22                   | 26              | 25              |                        |
| CEDAR RIVER at Cedar Falls          | APR-JUL | 48                  | 60                    | 69                | 84                                       | 78                   | 90              | 82              |                        |
|                                     | APR-SEP | 51                  | 62                    | 70                | 84                                       | 77                   | 89              | 83              |                        |
|                                     | APR-JUN | 46                  | 59                    | 67                | 84                                       | 76                   | 88              | 80              |                        |
| SOUTH FORK TOLT near Index          | APR-JUL | 10.3                | 11.7                  | 12.7              | 84                                       | 13.7                 | 15.1            | 15.2            |                        |
|                                     | APR-SEP | 12.1                | 14.0                  | 15.2              | 85                                       | 16.4                 | 18.3            | 17.8            |                        |
|                                     | APR-JUN | 8.6                 | 10.2                  | 11.2              | 86                                       | 12.2                 | 13.8            | 13.1            |                        |

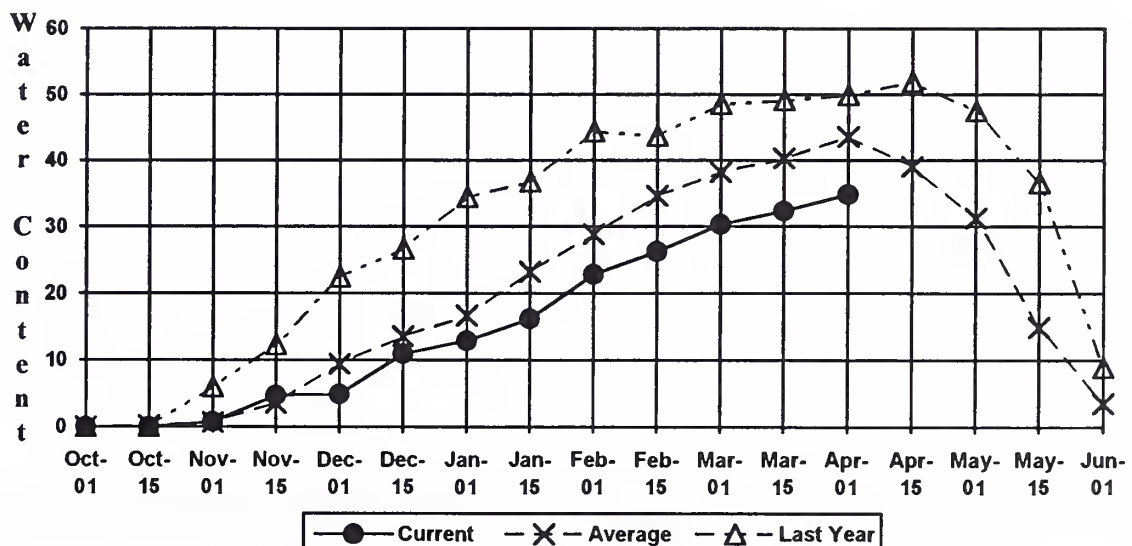
| WHITE - GREEN RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |     | WHITE - GREEN RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|--------------------------------------------------------------------------|-----------------|------------------------|-----------|-----|---------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                                                 | Number of Data Sites | This Year as % of |         |
|                                                                          |                 | This Year              | Last Year | Avg |                                                                           |                      | Last Yr           | Average |
|                                                                          |                 |                        |           |     | White River                                                               | 3                    | 80                | 96      |
|                                                                          |                 |                        |           |     | Green River                                                               | 7                    | 74                | 51      |
|                                                                          |                 |                        |           |     | Cedar River                                                               | 2                    | 145               | 35      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

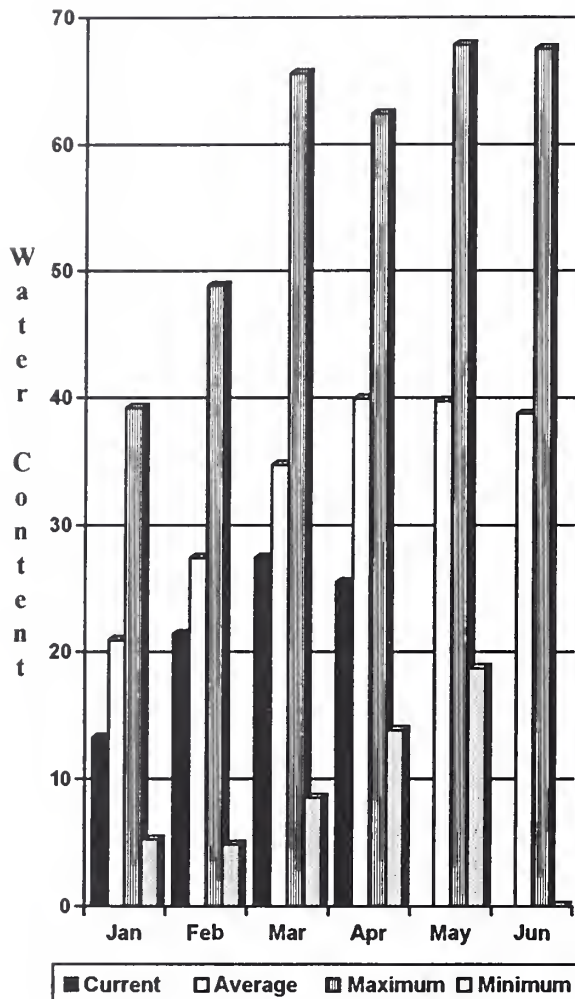
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Stampede Pass SNOTEL Elevation 3860 ft.

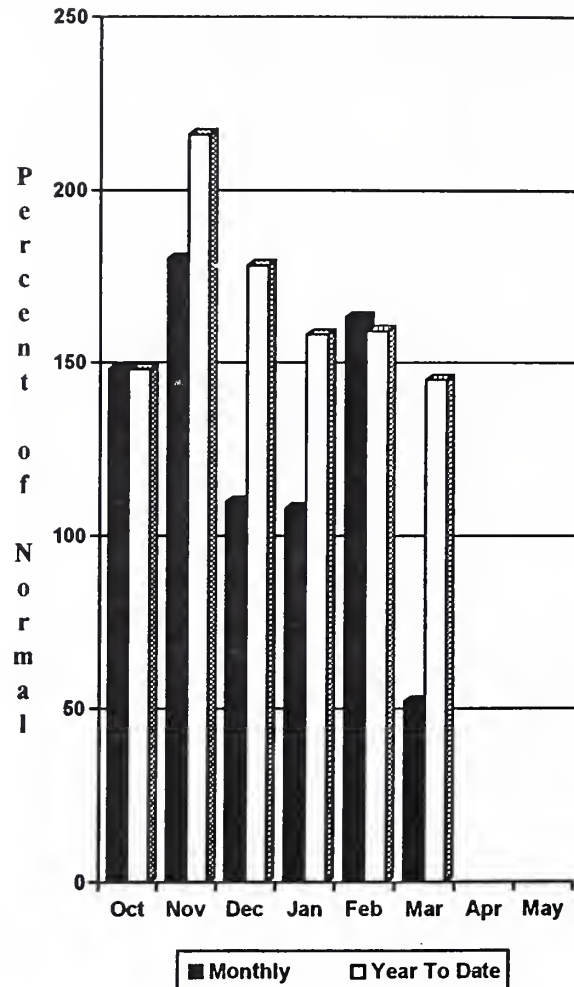


# North Puget Sound River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Forecast for the Skagit River streamflow is for 95% of normal for the spring and summer periods. March streamflow in the Skagit River was 107% of average. Other forecast points included the Baker River at 77%, and Thunder Creek at 100%. Basin-wide precipitation for March was 52% of average, bringing the water year-to-date to 145% of normal. April 1 snow cover in the Skagit River Basin was 90%; the Baker River Basin was 41%; and the Snohomish River Basin was 61% of average. Rainy Pass SNOTEL, at 4,780 feet, had 51.4 inches of water content. Normal April 1 water content is 38 inches. April 1 reservoir storage showed Ross Lake at 328% normal and 70% of capacity.

For more information contact your local Natural Resources Conservation Service office.

# NORTH PUGET SOUND RIVER BASINS

## Streamflow Forecasts - April 1, 1996

| Forecast Point               | Forecast Period | <----- Drier ----- Future Conditions ----- Wetter -----> |          |                       |          |          |          |
|------------------------------|-----------------|----------------------------------------------------------|----------|-----------------------|----------|----------|----------|
|                              |                 | 90% 70%                                                  |          | Chance Of Exceeding * |          | 30% 10%  |          |
|                              |                 | (1000AF)                                                 | (1000AF) | 50% (Most Probable)   | (% AVG.) | (1000AF) | (1000AF) |
| THUNDER CREEK near Newhalem  | APR-JUL         | 202                                                      | 217      | 228                   | 99       | 239      | 254      |
|                              | APR-SEP         | 301                                                      | 316      | 327                   | 100      | 338      | 353      |
|                              | APR-JUN         | 123                                                      | 138      | 149                   | 100      | 160      | 175      |
| SKAGIT RIVER at Newhalem (2) | APR-SEP         | 1716                                                     | 1930     | 2075                  | 95       | 2220     | 2434     |
|                              | APR-JUL         | 1440                                                     | 1619     | 1740                  | 95       | 1861     | 2040     |
|                              | APR-JUN         | 1121                                                     | 1257     | 1350                  | 96       | 1443     | 1579     |
| BAKER RIVER near Concrete    | APR-JUL         | 544                                                      | 603      | 644                   | 77       | 685      | 744      |
|                              | APR-SEP         | 697                                                      | 770      | 820                   | 77       | 870      | 943      |
|                              | APR-JUN         | 372                                                      | 432      | 473                   | 77       | 514      | 574      |

| NORTH PUGET SOUND RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |       | NORTH PUGET SOUND RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|------------------------------------------------------------------------------|-----------------|------------------------|-----------|-------|-------------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                    | Usable Capacity | *** Usable Storage *** |           |       | Watershed                                                                     | Number of Data Sites | This Year as % of |         |
|                                                                              |                 | This Year              | Last Year | Avg   |                                                                               |                      | Last Yr           | Average |
| ROSS                                                                         | 1404.1          | 978.2                  | 636.2     | 298.0 | Snohomish River                                                               | 6                    | 65                | 61      |
| DIABLO RESERVOIR                                                             | 90.6            | 85.4                   | 84.7      | ---   | Skagit River                                                                  | 12                   | 83                | 91      |
| GORGE RESERVOIR                                                              | 9.8             | 7.9                    | 8.1       | ---   | Baker River                                                                   | 9                    | 41                | 41      |

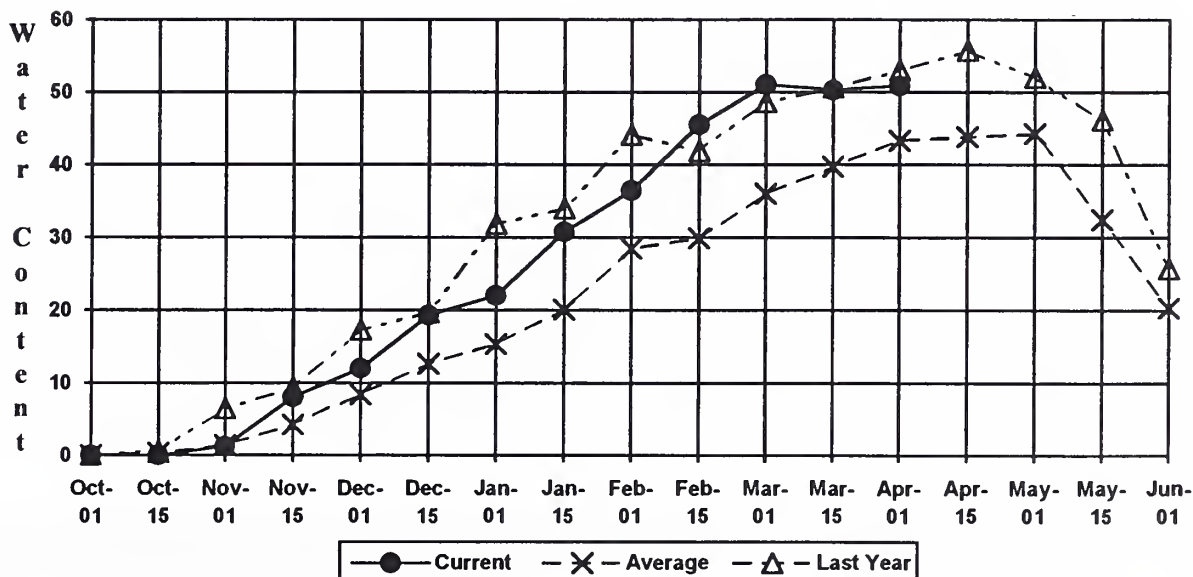
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Rainy Pass SNOTEL

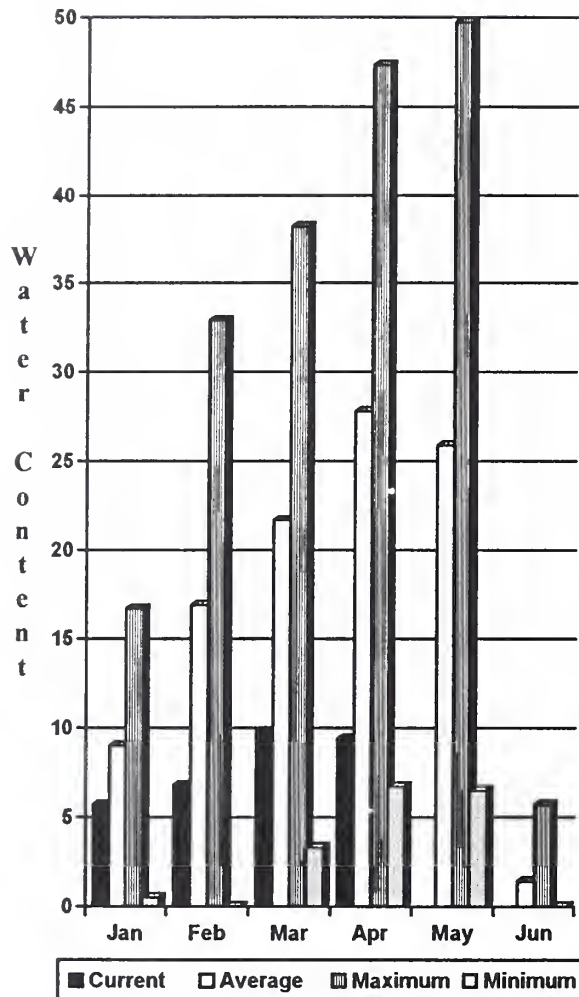
### Elevation 4780 ft.



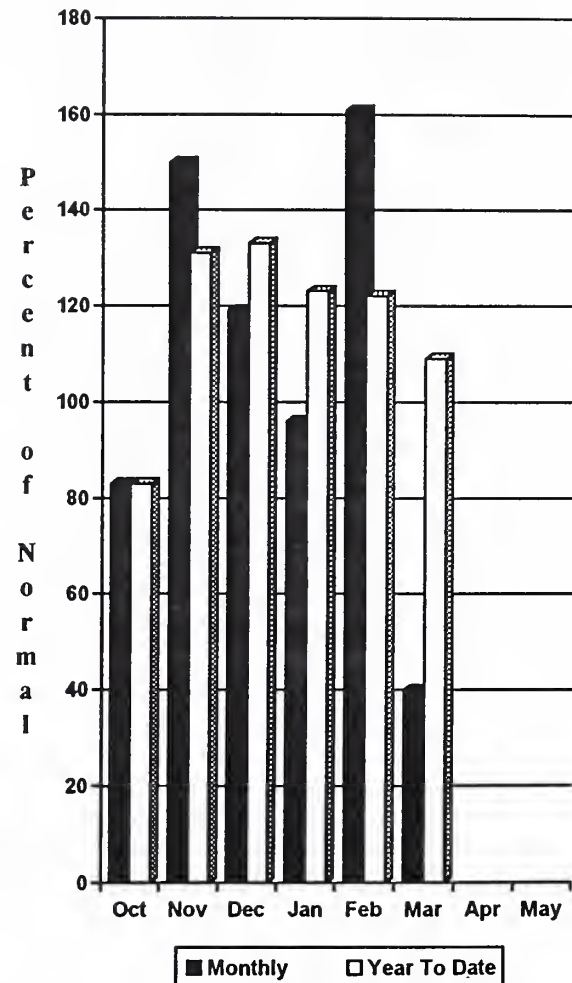


# Olympic Peninsula River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The April forecasts for streamflow runoff in the Dungeness River Basin is for 72% of average; the Elwha River is forecasted for 68% of average. The Big Quilcene can expect below normal runoff this summer as well. March precipitation was 40% of average, total accumulation has dropped to 109% of normal for the water year. March precipitation at Quillayute was 5.17 inches, which is below normal at 47% of average. Average April 1 snow cover in the Olympic Basin was much below average at 34%. The Mount Crag SNOTEL near Quilcene had 16.7 inches of snow water-equivalent on April 1. Normal for this site is 31.5 inches.

For more information contact your local Natural Resources Conservation Service office.

# OLYMPIC PENINSULA RIVER BASINS

## Streamflow Forecasts - April 1, 1996

|                             |                 | <<----- Drier ----- |                 | Future Conditions -----         |          | ----- Wetter ----->> |                 |                        |
|-----------------------------|-----------------|---------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
| Forecast Point              | Forecast Period | -----               |                 | Chance Of Exceeding *           |          | -----                |                 | 30-Yr Avg.<br>(1000AF) |
|                             |                 | 90%<br>(1000AF)     | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | 30%<br>(1000AF)      | 10%<br>(1000AF) |                        |
| DUNGENESS RIVER nr Sequim   | APR-SEP         | 90                  | 105             | 115                             | 72       | 125                  | 140             | 160                    |
|                             | APR-JUL         | 74                  | 86              | 94                              | 72       | 102                  | 114             | 131                    |
|                             | APR-JUN         | 55                  | 64              | 71                              | 72       | 77                   | 86              | 98                     |
| ELWHA RIVER nr Port Angeles | APR-SEP         | 252                 | 304             | 340                             | 68       | 376                  | 428             | 502                    |
|                             | APR-JUL         | 216                 | 259             | 288                             | 69       | 317                  | 360             | 417                    |

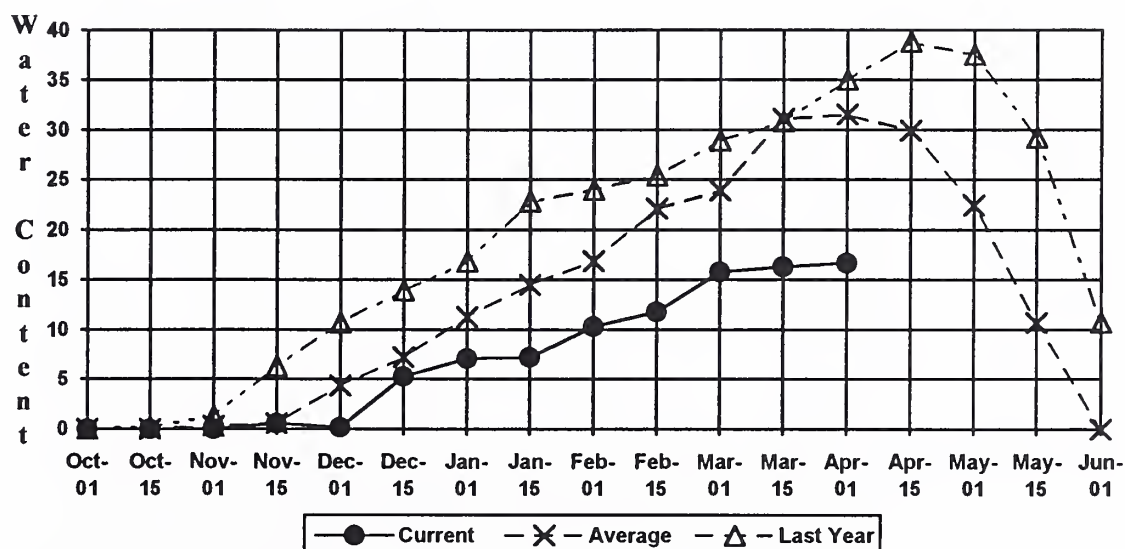
| OLYMPIC PENINSULA RIVER BASINS<br>Reservoir Storage (1000 AF) - End of March |                 |                        |           |     | OLYMPIC PENINSULA RIVER BASINS<br>Watershed Snowpack Analysis - April 1, 1996 |                      |                   |         |
|------------------------------------------------------------------------------|-----------------|------------------------|-----------|-----|-------------------------------------------------------------------------------|----------------------|-------------------|---------|
| Reservoir                                                                    | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                                                     | Number of Data Sites | This Year as % of |         |
|                                                                              |                 | This Year              | Last Year | Avg |                                                                               |                      | Last Yr           | Average |
|                                                                              |                 |                        |           |     | Elwha River                                                                   | 1                    | 18                | 10      |
|                                                                              |                 |                        |           |     | Morse Creek                                                                   | 1                    | 42                | 40      |
|                                                                              |                 |                        |           |     | Dungeness River                                                               | 1                    | 47                | 33      |
|                                                                              |                 |                        |           |     | Quilcene River                                                                | 1                    | 48                | 53      |
|                                                                              |                 |                        |           |     | Wynoochee River                                                               | 0                    | 0                 | 0       |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

## Mount Crag SNOTEL Elevation 4050 ft.



## Interpreting Streamflow Forecasts

### Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

**Most Probable (50 Percent Chance of Exceeding) Forecast.** This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

### To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

**70 Percent Chance of Exceeding Forecast.** There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

**90 Percent Chance of Exceeding Forecast.** There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

### To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

**30 Percent Chance of Exceeding Forecast.** There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceeding Forecast.** There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

**Using the Most Probable Forecast.** Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

**Using the Higher Exceedance Forecasts.** If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

**Using the Lower Exceedance Forecasts.** If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

| UPPER HUMBOLDT RIVER BASIN        |                 |                               |                     |                                         |     |        |                                |     |        |
|-----------------------------------|-----------------|-------------------------------|---------------------|-----------------------------------------|-----|--------|--------------------------------|-----|--------|
| STREAMFLOW FORECASTS              |                 |                               |                     |                                         |     |        |                                |     |        |
| FORECAST POINT                    | FORECAST PERIOD | FUTURE CONDITIONS — WETTER —> |                     |                                         |     |        | Chance of Exceeding            |     |        |
|                                   |                 | DRIER —>                      |                     | 70% (1000AF) (1000AF) (% AVG.) (1000AF) |     |        | 10% (1000AF) (1000AF) (1000AF) |     |        |
|                                   |                 | 90%                           | 50% (Most Probable) | 30%                                     | 10% | 25 Yr. | 70%                            | 50% | 25 Yr. |
| MARY'S RIVER nr Deeth             | MAR-JUL         | 5.0                           | 20.0                | 36                                      | 77  | 52     | 76                             | 47  |        |
|                                   | APR-JUL         | 8.0                           | 17.0                | 31                                      | 74  | 45     | 67                             | 42  |        |
| LAMOILLE CREEK nr Lamolle         | MAR-JUL         | 6.0                           | 16.0                | 24                                      | 79  | 32     | 43                             | 31  |        |
|                                   | APR-JUL         | 4.0                           | 15.0                | 22                                      | 75  | 30     | 41                             | 30  |        |
| NF HUMBOLDT RIVER at Devil's Gate | MAR-JUL         | 6.0                           | 12.0                | 43                                      | 73  | 74     | 121                            | 59  |        |

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Streamflow Forecasts".



*Issued by*

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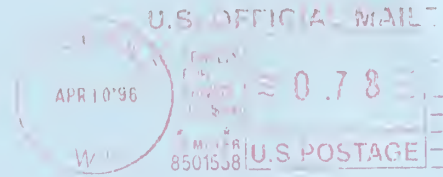
## The Following Organizations Cooperate With the Natural Resources Conservation Service in Snow Survey Work\*:

|                |                                                                                                                                                                                                                                                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Canada</b>  | Ministry of the Environment<br>Investigations Branch, Victoria, British Columbia                                                                                                                                                                                                                                                       |
| <b>State</b>   | Washington State Department of Ecology<br>Washington State Department of Natural Resources                                                                                                                                                                                                                                             |
| <b>Federal</b> | Department of the Army<br>Corps of Engineers<br>U.S. Department of Agriculture<br>Forest Service<br>U.S. Department of Commerce<br>NOAA, National Weather Service<br>U.S. Department of Interior<br>Bonneville Power Administration<br>Bureau of Reclamation<br>Geological Survey<br>National Park Service<br>Bureau of Indian Affairs |
| <b>Local</b>   | City of Tacoma<br>City of Seattle<br>Chelan County P.U.D.<br>Pacific Power and Light Company<br>Puget Sound Power and Light Company<br>Washington Water Power Company<br>Snohomish County P.U.D.<br>Colville Confederated Tribes<br>Spokane County<br>Yakama Indian Nation                                                             |
| <b>Private</b> | Okanogan Irrigation District<br>Wenatchee Heights Irrigation District<br>Newman Lake Homeowners Association                                                                                                                                                                                                                            |

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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